FRENCH
INSTITUTE
PONDICHERRY

INSTITUT
FRANÇAIS DE
PONDICHERY

PONDY PAPERS IN SOCIAL SCIENCES

7

Colonial Forest Exploitation in the Western Ghats of India: A Case Study of North Kanara District

Marlène BUCHY

SEPTEMBER 1990

DEPARTMENT OF SOCIAL SCIENCES

FRENCH INSTITUTE. 10 ST. LOUIS STREET. P.B. 33. PONDICHERRY 605001. INDIA.

Pondy Papers in Social Sciences. N°7. French Institute, Pondicherry

Colonial Forest Exploitation in the Western Ghats of India: A Case Study of North Kanara District

Marlène BUCHY

September 1990

Marlène Buchy is Research Fellow in History, French Institute, Pondicherry.

ACKNOWLEDGEMENTS

The present research work carried out in the State of Karnataka owes much to the active help and support of a certain number of people whom I would like to thank here. I am extremely grateful to Mr. S. Parameswarappa, Principal Chief Conservator of Forests at Bangalore; Mr. S. Kamath, Chief Editor of "Karnataka State Gazeteers" at Bangalore; Dr. S.N. Ray, Chief Conservator of Forests at Dharwad; Mr. S.M. Jaamdar, Deputy Commissioner at Karwar; Mr. Y. Sadashiv, Assistant Commissioner at Karwar; Mr. G.G. Naik, Ranger at Karwar and all the others in North Kanara District without whose guidance this work would not have materialized.

INTRODUCTION : SUBJECT AND AREA OF STUDY

The district of North Kanara is situated to the north of the State of Karnataka, facing the sea of Oman and bordering on the territory of Goa. In 1799, following the defeat of Tipu Sultan, it was placed under the Madras Presidency. Later, in 1862, it was shifted to the Bombay Presidency because of its strong economic ties with the latter.

This district covers an area of 10,291 Km^2, and is sub-divided into 11 taluks that can be grouped together as follows according to their geographical characteristics:

- the coastal region, which has a hot and humid climate (rainfall varies between 2500 mm and 3556 mm) and comprises the taluks of Karwar, Kumta, Ankola, Honavar and Bhatkal;
- the hilly region of the Western Ghats (1500 - 3000 feet high), which is very humid to the south (rainfall varies between 3048 mm and 3556 mm), and comprises the taluks of Sirsi, Siddapur, Supa and Yellapur;
- the region of transition, which is drier (rainfall varies between 1016 mm and 1524 mm), and comprises the taluks of Mundgod and Haliyal.

Geographical diversity is responsible for the growth of three different vegetation types found throughout the district:

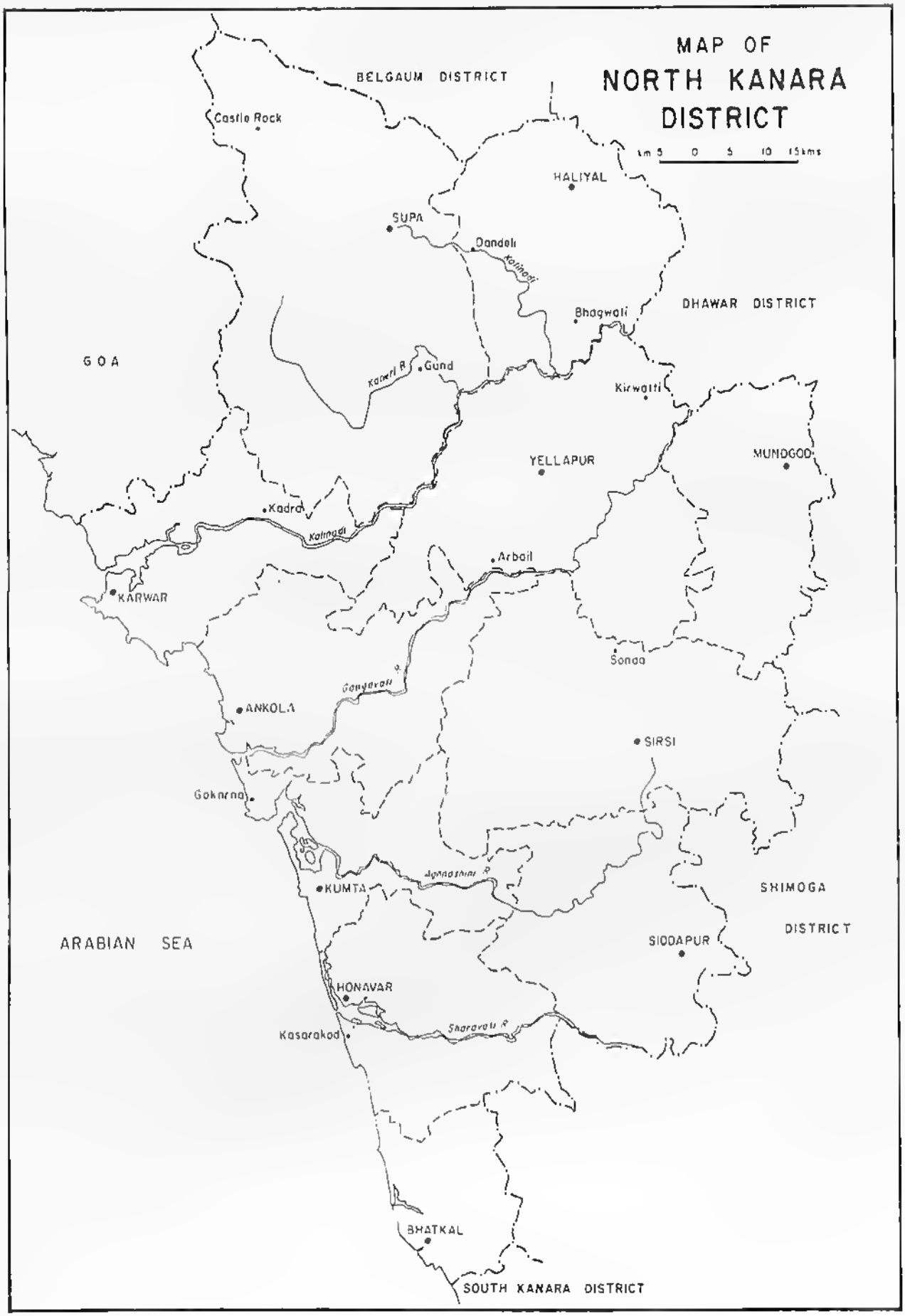
- Evergreen forest type	Found mainly in Sirsi, Siddapur, and the hilly eastern regions of Honavar, Kumta, Ankola, Karwar.
- Semi-deciduous forest type	Slopes of Ankola, Kumta, Karwar, Honavar, Siddapur, Sirsi.
- Deciduous forest type	Haliyal, Supa, Mundgod.
- Humid deciduous forest type	Ankola, Bhatkal, Yellapur, West Karwar, coastal region of Kumta.

Teak (*Tectona grandis*), a deciduous type known and used since long, was the first to draw the attention of British foresters. Other less well-known types gained commercial value only as time went on, and were subjected to more systematic exploitation. Without going into the botanical details, we provide below a list of the most common types:

Evergreen types:	hebbalasu, anjili	*Artocarpus hirsutus*
	halasu (jack tree)	*Artocarpus heterophyllus (= A. integrifolia)*
	tundu, devdari	*Toona ciliata (Cedrela toona)*
	bakul, ranja	*Minusops elengi*
	bulgi	*Vitex altissima*
	jambul	*Syzygium cumini (= Eugenia jambolana)*
	baine (sago palm)	*Caryota urens*
Deciduous types:	thega (teak)	*Tectona grandis*
	nandi	*Lagerstroemia microcarpa*
	matti	*Terminalia alata (= T. tomentosa)*
	kindal	*Terminalia paniculata*
	honne	*Pterocarpus marsupium*
	dindal	*Anogeissus latifolia*

It is to be noted that these forests are equally rich in minor produce such as resins, tans, honey, wax, spices, as also in bamboo.

The roadway network was barely developed in 1799, but the navigable network composed of the Kalinadi, Gangavali, Tadri and


MAP OF
NORTH KANARA
DISTRICT
1m 5 0 5 10 15kms
BELGAUM DISTRICT
Castle Rock
HALIYAL
SUPA
Dandeli
Kalinadi
DHAWAR DISTRICT
Bhaqwali
GOA
Kaneri R.
Gund
Kirwatti
YELLAPUR
MUNDGOD
Kadra
Kalinadi
Arbail
KARWAR
Sonda
Gangavali
ANKOLA
SIRSI
Gokarna
Aghanashini R.
KUMTA
SHIMOGA
DISTRICT
ARABIAN SEA
SIDDAPUR
HONAVAR
Kasarakod
Sharavati R.
BHATKAL
SOUTH KANARA DISTRICT

Sharavati rivers, which flowed from the Ghats towards the sea, not only gave access to the forest reserves, but also allowed, at least in the case of the first two rivers, the clearance of forest produce at minimal cost during the monsoon period.

In these rich and varied surroundings, and despite certain regions being malarious, the local population, which lived mainly along the coast, developed systems of production that were closely dependent on the environment. Rice was everywhere the dominant crop, occasionally associated with sugar-cane. Since olden days (16th and 17th centuries), the district of North Kanara was well known for its trade in spices, especially pepper, in which there was a thriving trade with the Portuguese. Pepper was either harvested on wild plants in the forest or grown in private "spice gardens" that were put up in the forest. The fertility of the plants was maintained by adding green manure from the neighbouring forest.

In the mountain areas of the interior, the people lived in small, scattered hamlets, and practised slash and burn agriculture (*kumri*) which consisted in felling the trees on a given plot of land, setting fire to them at the end of the dry season, and sowing *ragi* or rainfed rice at the beginning of the rainy season. The plot was thus cultivated for two or three seasons, after which period the cultivator moved away.

The gathering of minor forest produce for sale or family consumption, the collection of firewood, cattle-raising and grazing in the forest, as well as the long-standing exploitation of teak and certain other species, were other aspects of the close dependence of the people on the forest for their daily needs. We will touch upon these aspects in detail later.

Since time immemorial then, man in this region more or less depended on the forest for his subsistence.

In the 19th century, colonization, a factor that was by nature foreign to the local ecological and social set-up, brought about a cleavage by imposing a new mode of forest management. In this instance, as in others, the model of government imported by the colonizers has continued to exist even after their departure. Historical analysis is thus necessary to understand the economic, social and even ecological situation prevalent in the Ghats forests today.

Through this case of the North Kanara district, it is our intention to bring out the pattern or structure of colonial forest exploitation and management, its origin and nature, and its means and objectives.

The aim of this study is thus to provide elements of reflection on the social impact of the colonial breakthrough, on the changes imposed on the pre-colonial systems of production, and on the human reactions to the environmental changes that have followed.

SETTING-UP A FOREST ADMINISTRATION

THE CODIFICATION OF FOREST USE

The "pre-administrative" situation

When the British settled down in the area, there was no organized forest administration. Exploitation and trade only concerned selected species of high commercial value such as teak, sandalwood and ebony, and certain spices like cardamom and pepper. The law, which was very sketchy, prohibited the private felling of the species cited above, these being the exclusive property of the State.[1]

We lack precise information at present regarding the public or private forest organisation (if any such organisation existed at all) or the property status of forests during the pre-colonial days. Again, we have very little knowledge regarding the pre-administrative period which stretches from 1799 to 1864 (the year in which the Forestry Department was set up and D. Brandis was appointed as the first Inspector-General of Forests). But it is clear that little progress had been achieved before Cleghorn was made Conservator of Forests in Madras in 1856. The situation regarding forest property rights was rather complicated, and hampered the growth of organized forest administration.

There is no denying the fact that the question of the public or private ownership of forests was complex. According to Stebbing, the confusion was due to a lack of proper definitions[2]. Thomas Munro, and after him Buchanan in his travel account, had described the forests as State property. On the other hand, W. Robinson, Member of the Madras Board of Revenue in 1871, imposed his view that all forest lands adjoining land-revenue paying lands formed part of these lands, thus transforming them at once into private property.

As a matter of fact, it does seem that there were instances when forests used by the rural communities had broken up into private plots in the course of generations.[3]

Data from the "Kanara Case"

An idea of the complexity of the problem can be gained from a court case known as the "Kanara Case" (1879) which concerned some property rights in the Kadra region of Karwar Taluk.

The defendant, Martoba, claimed the property of four plots of forest land of which he had apparently been dispossessed without compensation. He claimed to have in his possession the *sanads* granted to his ancestors by an officer in the service of Tippu Sultan. Although it was evident that the defendant had produced false papers, the case was an interesting one. The various depositions shed ample light on land rights, forest exploitation, rights of collection of forest produce, and on the organisation of *kumri* cultivation. The plots of forest land under dispute were under cultivation and the tax paid to the Revenue Department provided the right to practise *kumri*. The following procedure had to be adhered to:

"An estimate was made as to how much *kumri* could be cut by a particular number of men with a particular number of bill-hooks in the jungles in each village or in each *varg*; the produce estimated for each bill-hook was one rupee. It was ascertained, on inspection of the condition of each jungle, whether in the event of *kumri* being (once) cut in the said jungle, it would take twelve or fifteen or twenty years to cut *kumri* (there again)".[4]

The choice of a plot for *kumri* was not done at random. It was subject to official approval. Custom dictated that the plot be left waste by the cultivator long enough to allow for the vegetation to recover. There existed a distinct will to preserve the eco-system from systematic destruction.

It also appears from the Kanara Case that Martoba had sold the trees on his plot of *kumri* land without informing the authorities concerned. Under the pretext of not finding enough *kumri* cutters, he had brought in timber merchants directly from Goa. These men had cut and taken away part of the trees, while the rest had been donated to the temple by way of contribution to cult expenses.[5]

During the hearings, the Revenue Officers emphasized the two following points :

- The right to use a plot of land, which was conferred by paying the land tax, did not entail the actual ownership of the land. The *sanad* which Martoba claimed to possess conferred on him certain rights and powers, but did not in any way entitle him to claim the ownership of the land.

- The unauthorized sale of the trees that grew on a plot was illegal. Earlier, there was no law against timber-trading, but after 1845 it became necessary to obtain a license to fell trees for commercial purposes (while firewood, at that time, could still be gathered free)[6]. In 1852, the Collector, Mr. Maltby, had introduced the system of auctioning the right to extract wood[7]. What irked the Revenue Department most was the fact that it was unable to draw any revenue from the timber sales that were privately concluded between Martoba and the timber-merchants of Goa, since it had no means to control them.

Land revenue having long been the only source of revenue of the Government, the Settlement Officers were greatly preoccupied by the competition between forest land and agricultural land. In 1814, in order to encourage pioneer land-colonization by peasants, Read, the then Collector of Kanara, had proposed the abolition of the tax on timber-felling, which was unpopular and tended to discourage the clearing of forest lands. Munro himself in 1802 had declared the forest to be an obstacle to progress and prosperity.[8]

Historical Outline

During the early colonial period, there were no proper forest laws, and confusion reigned supreme. The British were bent on increasing the land revenue and regarded the forests in a negative light. For half a century, the absence of any legal framework gave people a free hand, and the forests were literally plundered, particularly the teak stands. The forests were then considered to be inexhaustible, and the timber-merchants formed a powerful pressure group which effectively hindered the growth of forest legislation. In 1806, the Madras Government appointed Captain Watson as Conservator of Forests with a view to ensure the regular supply of teak for shipbuilding. But the efforts to establish a state monopoly over the exploitation of this species in the Ghats forests failed, and the post of Conservator of Forests was abolished in 1823.[9]

In a celebrated Minute of 1855, Lord Dalhousie outlined for the first time a framework of basic principles for the administration of the forests of India. Eventually, the voice of the foresters, with D. Brandis as their leader, made itself heard. They were mainly concerned with the protection of the environment, which was already considerably degraded[10], and with the rational management of the forests, which would not only ensure their economic profitability but also bring revenue to the State. It was left to D. Brandis to prove that the creation of a Forest Department would not be a burden to the Governmental budget, but on the contrary a fruitful source of revenue. Regarding this,

Ribbentrop wrote: "As a matter of fact hardly anybody believed in the possibility of a conservative treatment of State Forest Property through a State Department ever being remunerative"[1]. It is important to note this point because, as we shall see later while analyzing the statistics of the Forest Department, the whole forest policy was for this reason directed toward short term profitability.

The creation of a body of forest laws thus became necessary both to unravel the complexities of the land rights and to develop a lucrative forest administration. The creation of the Forest Department in 1865 was followed by the promulgation of the Indian Forest Act (Aet VII of 1865), which was found defective and was replaced in 1878 by the Indian Forest Act (Act VII of 1878). The latter, with such alterations as were needed to suit the local conditions, was adopted by the Bombay Presidency in 1883.

The forest legislation

The Indian Forest Act

The Indian Forest Act clearly vested the Government with full authority regarding forest administration. Although the law provided for preliminary inquiries into the matter of preexisting rights of property, the State was fully empovered to take possession of forest lands and to divest the individuals of their rights in the name of public interest. The State brought into being a system of administrative boundaries especially designed to demarcate reserved areas. It could probibit at will the felling of certain species and also restriet the gathering of Minor Forest Produce. (M.F.P.) and firewood. The State similarly exercised control over grazing, and could resort to the penalties provided by the Penal Code in case of any violation of forestry regulations. The State also defined the categories of forest produce (timber, M.F.P.) and regulated the timber trade by instituting the system of felling licenses and fixing the amount of the taxes. The aim was to direct the forest produce towards timber and firewood depots which were managed by the State along the principles of auction selling.

Parallel to this, a Forest Department Code was published in 1904 in order to set the aims and organize the functioning of the Department, and to determine the appointments, salaries, rights and duties of the officers, the methods for framing the previsional budgets and keeping the accounts, and to deal in a general way with all the aspects of forest administration and management.

The Kanara Rules

Since the economic life of the local population was closely dependent on forest use, the forests of North Kanara could not be forthrightly declared as reserved without certain adjustments. The Indian Forest Act therefore had to be complemented by the Kanara Permit Rules, which in their turn were replaced by the Kanara Reserved Permit Rules, and later by the Kanara Forest Privilege Rules. All these were regularly revised and updated. The amendments passed from time to time concerned the following points:

- Rights of user

Rights of user in certain defined areas of Government Forests were conceded to rural communities within the limits of the village areas. The villagers were thus allowed to collect —exclusively for domestic consumption— the following forest products:

1) Bamboos of sorts;
2) Junglewood for small houses, huts, chuppers, cattle-sheds etc.;
3) Dry wood for fuel;
4) Leaves and grass for manure, etc.;
5) Thorns and brushwood and stakes for hedges and dams;
6) Wood for agricultural implements;
7) Dead sago and other palm-trees for water-courses etc.[12]

The village headmen were held responsible for the enforcement of these rules. The personal responsibility that weighed on them was expected to operate as a guarantee of efficient working of the system.

- Extraction and commerce

The exploitation of timber was subject to strict rules. In order to obtain timber for domestic purposes, the peasants had to submit an application to the *mamlatdar* seeking permission to fell and transport. They were also required to supply precise information regarding the nature of the produce, the quantity required and the purpose of utilization. The produce had to be conditioned according to fixed rules in order to facilitate its measurement and control. Timber could be obtained only after paying a tax, the amount of which was fixed by the Conservator of Forests. Permit was granted subject to the following conditions:

"Subject to the conditions of Rules XXIV to XXVII and if the fees are less than Rs. 25 (£ 2. 10 s.), and the mamlatdar or mahalkari sees no objection to the grant, he may give a permit. If the fees are more than Rs. 25, he should report the case to the Assistant Collector with

his opinion. The Assistant Collector may sanction the issue of any permit the fees on which do not exceed Rs. 60 (£ 6), provided no person shall be permitted to cut more than 50 khandis (625 cubic feet) of squared timber within ten years without the special permission of the Collector.

The Collector shall not sanction the issue of any permit in excess of 100 khandis (1250 cubic feet) without a previous reference to the Revenue Commissioner through the Conservator of Forests. For every grant of more than fifty khandis, it shall be competent for the Conservator, in communication with the Collector, to exact special rates not exceeding twice the ordinary rates in force."[13]

This timber could not be sold under any circumstances. All offenders were liable to upto 6 months imprisonment and heavy fines.

For certain purposes of public utility such as building of churches or schools, or when private houses had been destroyed by fire or natural calamities, timber could be granted free of charge. A peasant owning plots of land with trees on them could not apply for the right to fell trees in Government forests under the privilege rules.

All timber merchants were forced to pay taxes and had to obtain transport passes specifying:

1) the name of the person to whom the pass was granted;
2) the quantity and description of timber or other forest produce covered by it;
3) the places from and to which the timber or other forest produce was to be conveyed, and the route by which it was to be conveyed;
4) the period for which the pass was to be in force;
5) the officer to whom it was to be returned on the expiry of the said period, or on the arrival of the timber or other forest produce at destination, whichever event happened first.[14]

All goods exported from British India were subject to the procurement of a Foreign Pass that was granted only on the fulfillment of certain conditions and after paying a tax which was 50% higher than the ordinary tax.

- *Reserved Species*

The State reserved the right to exclusive ownership of certain tree species, the felling of which was strictly prohibited even when the trees

were growing on private plots. The list of these species has varied slightly, as shown hereafter:

Tectona grandis	Teak	*sagwani, thega*
Santalum album	Sandalwood	*gandadamara*
Dalbergia latifolia	Blackwood	*bite*
Diospyros ebenum	Ebony	*karimara*
Pterocarpus marsupium		*honne*
Calophyllum polyanthum (= *C. elatum*)		*surhoni'*
Terminalia alata (= *T. tomentosa*)		*matti*
Vitex altissima		*bulgi*
Eugenia dalbergiades (?)		*karimutak*
Gmelina arborea		*shivani*
Species added in 1902:		
Terminalia chebula		*alale*
Acacia catechu		*khair, shemi*
Shorea roxburghii (= *S. talura*)		*jhallandra*
Species deleted:		
Calophyllum elatum		
Terminalia tomentosa		

The Code of Forest Privileges

This Code (sanctioned for the North Kanara District in 1944) was a compilation of the various amendments and modifications of the forest laws passed during the 1930's. Some of these texts related to the grant of rights of user to certain castes or social groups (such as free use of tali-palm to Kumri-Maratha families in Honavar taluk, Bhatkal petha and part of Kumta taluk and to all poor people of other castes; or concession rates for local sandalwood workers). Other sections of the Code were of a restrictive nature. One of them restricted the quantity of forest produce that was granted free to the villagers to the amount that could be carried away on human back. Pasture areas were also reduced. In most of the Reserved Forests that fell under a Working Plan, the access to water-points was restricted to specific pathways.

Facilities were actually granted only in the case of minor produce (with the possible exception of sandalwood), and to a small percentage of the population. The foresters, in fact, stood to lose very little on account of these concessions, while the restrictions related to items of everyday consumption. These stringent measures may have been due to the population increase, which further intensified demographic pressure on an already reduced forest area. But it is nonetheless likely that the

Government was out to make as much revenue as it could from its forest management schemes. It is a fact that when the peasants could no longer collect all the firewood they needed in the forests themselves, they had no option but to buy their additional supply from the government depots.

The significance of the law

It is evident that the Indian Forest Act tended to establish by force of law the absolute sway of the British Government over the forest areas through the medium of forest administration. The inhabitants of those areas were deprived not only of their ancestral rights of user but also of the full control of their own lands. The Government, in a resolution of 1890, stated in a very revealing manner that: "the privileges conceded are intended to be exercised as a matter of favour and not of right, and are liable at any time, at the pleasure of the Government, to modification, curtailment or discontinuance". We find here colonization in its most stringent form, rules being framed arbitrarily and the ruling power claiming the right to alter practically everything. The precariousness of the rights of user relating to the MFP was to have a decisive influence locally on the evolution of the traditional systems of production.

The administration thus encroached upon a domain that had so far been governed by the local society according to its accepted norms, and imposed a framework of rules whose principles were culturally exogenous. Not only were the people dispossessed, but they found it difficult to fully understand the new order of things to which they were subjected.

The well-being of the population at large was only a subordinate consideration in the model of forest development conceived by the British. The curtailment of the rights of user was seen by the bureaucrats as the only possible way to intensify forest exploitation while at the same time "civilizing" the local self-sufficient peasantry, which lived at the periphery of the supra-regional system of economic exchange.

Though forest management was conducted in the name of the public good (for the development of the imperial railway network for instance), what it actually meant for the inhabitants of the Ghats was the restriction of free access to the forest, of free circulation in the forest, of free use of forest produce, and the development of a repressive system of forest control.

THE FOREST SETTLEMENT

The new forest legislation could not be implemented unless the framework of land rights was clear and well defined. A distinction had to be made between agricultural land and forest land, and the latter had to be precisely subdivided.

In the Forest Settlement Room of the Collectorate at Karwar, three kinds of documents can be found for every village:

- a topographical map of the forest lands mentioning the legal category to which each plot belongs;
- a record of proceedings relative to the inquiries made by the officers of the Collectorate regarding proprietary rights, land use and the rights and customs connected with forest use;
- a Village Forest Register recording the exact areas of the forests and the administrative classes to which they belong, the acknowledged rights of user, the plots reserved for grazing. These registers are brought up to date every time a piece of forest land is transferred.

Through an in-depth study of these documents, one can trace the history of the contraction of forest lands, and of the correlative progress of agricultural and industrial activities which developed at their expense, and one can single out which forest zones and forest types were chiefly affected by these transformations.

G.F.S. Collins, the District Settlement Officer, has described the successive stages in the Forest Settlement from 1878 to 1897[15]. In 1897, the forest cover of the district was totally and definitively classified as "Reserved Forest" and sub-divided into "Forest Proper" and "Minor Forest". The purpose was to make a distinction between the rich forest areas that were administered with an eye on financial gain, and those in which the total population could exercise its recognized "privileges". In addition to these Reserved Forests, which formed exclusive Government property, two categories of special forest land were defined:

- *betta* lands which, although public property, were meant for the exclusive use of the peasants. They consisted of plots of land adjoining the spice gardens, and constituted reserves of green fertilizer necessary for maintaining the fertility of the gardens. Their area was fixed at 9 acres per acre of garden area.
- *kumri* or *hakkal* lands, meaning plots of cultivated land located in the forest (such as those which were disputed in the Kanara Case), which were relics of the rights of shifting cultivation.

As regards the progress of the Forest Settlement, Collins supplies the following chronology:

1888	Honavar	21	Villages	(Wingate)
	Kumta	16	"	(do)
1890-92	Sirsi	16	"	(do)
	Kumta	45	Villages	(Wingate)
	Kumta	47	"	(do)
1890-92	Ankola	21	"	(do)
	Sirsi	17	"	(do)
	Yellapur	80	"	(do)
1892-93	Karwar whole			(Sheppard and Wingate)
1894	Supa whole			(Wingate)
1894-96	Sirsi (old)	176	"	(Sheppard)
1896-97	Honavar	68	"	(do)
1897-98	Bhatkal whole			(do)
1899-1900	Siddapur (old) whole			(do)

Some of the Settlements were modified in accordance with the local rights of user. Thus, for instance, the area of Minor Forest in the coastal region was increased. Some of the more sensitive areas like the coastal talnks, where the population density was highest, or the Sirsi-Siddapur region, which was famous for its spice gardens, were granted certain additional privileges.

The areas covered by the Settlement were selected mainly in consideration of the value and utility of the stands. It is no surprise that the geographic distribution of the Working Plans (which we shall discuss hereafter) actually closely follows the geographical coverage of the Settlement.[16]

To a large extent, the forests of the coastal areas and those adjoining important human settlements were classified as Minor Forest with accompanying privileges, while dense forest areas with low population were declared as "Forest Proper", a class of forests where the Forest Department could however grant certain privileges on its own by way of special dispensation. For example, as the administration considered the demarcation of Minor Forests at Supa as too expensive for such a sparsely peopled area, the foresters took it upon themselves to tackle the problem alone.[17]

As concerns the *kans*, which were scattered plots of evergreen forest, they were in all cases classified as Forest Proper.

CONCLUSION

The gradual development of this structure of forest administration, and particularly the thorough work of codification and geographical demarcation thus accomplished, show that the British left nothing to chance. The wooded space which the local society had until then used and managed according to its own norms now came under new exogenous laws, and was equipped with a system of boundaries which gave forest exploitation a new centralized outlook. The all-powerful State reserved the rights to exclusive use of the hard-timber stands, while framing draconian rules for the use of the economically less valuable stands. These distinctions, the effect of which was to increase the demographic pressure on the reduced forest areas left open to the public, could not but generate ecological and social problems.

THE FOREST POLICY

In order to analyze the forest policy followed by the British, we have referred to the *Annual Report on the Forest Administration of the Bombay Presidency* (1886-1948) and to the Working Plans (W.P.) of the District of North Kanara. These documents are complementary. The former provide a yearly summary of the activity of the Forest Department with the corresponding statistical returns. The W.P. provide guidelines for forest management and exploitation for a period of one or more decades and are rich with technical information regarding economic choices and sylvicultural orientations at the level of the taluk forests. The rich forests of the district were especially important for the Bombay Presidency because, as T. Bell wrote in 1895: "Kanara is the only place in this Presidency where teak of large size can be had; blackwood nowhere exists of the same size as here. It is therefore of the utmost importance that these forests are properly looked after"[18]. The analysis which follows is aimed primarily at evaluating the work of the British from the point of view of investment and exploitation.

THE FOREST POLICY THROUGH FIGURES

In order to render the reading of statistics more meaningful, we have grouped the figures under a certain number of headings which

assume special significance in the perspective just mentioned. A full set of tables is provided in the appendix.

Particular attention has been paid to the analysis of the forest budget of the district. Only selected heads of revenue and expenditure have been studied:

- revenu heads 1 and 2, which indicate the principal sources of revenue of the Forest Department as per type of exploiting ageney (public or private) and type of produce (timber, firewood, minor produce, bamboo, grazing);
- expenditure heads 1 and 7, the first of which indicates the cost of production per type of produce, while the second enumerates the investment costs incurred for the improvement of the forest capital, both being clear indicators of the orientations of the forest policy.

In the series of annual reports available at the office of the Conservator of Forests at Dharwar, there is a gap for the period 1914-1921 and a few other issues are missing. This unfortunate circumstance has made it impossible to study the impact of the First World War on colonial forest exploitation. It has nevertheless been possible to reconstruct the general line of evolution over the period 1886-1947, which is fairly revealing.

Generalities

The district of North Kanara undoubtedly played a major role in the forest economy of the Southern Forest Circle of Bombay Presidency (which also included the districts of Bijapur, Dharwar and Belgaum). As can be seen from figure 1 in the appendix, the district revenue consistently represented more than 50% of the total revenue of the Circle during the period under study, and it occasionally rose upto 80%.

The district was split up into forest divisions, the number of which varied as follows during the period under survey:

Situation in 1883:	Northern Division	Haliyal, Supa, Karwar
	Central Division	Yellapur, Mundgod, Ankola, Kumta
	Southern Division	Sirsi, Siddapur, Honavar, Bhatkal
Situation in 1895:	Northern Division	Haliyal-Supa,
	Southern Division	Yellapur, Mundgod, Sirsi, Siddapur

	Western Division	Karwar, Ankola, Kumta, Honavar
Situation in 1907:	Northern Division	Haliyal-Supa
	Southern Division	Sirsi, Siddapur, Honavar, Bhatkal
	Eastern Division	Yellapur, Mundgod,
	Western Division	Karwar, Ankola, Kumta.

In addition, the Kanara Coast Division, which comprised part of the coastal forests, was created in 1924, and abolished in 1930.

Initially, these divisions were made on a purely geographical basis. Subsequently, there was a tendency to group together taluks with similar forest composition in order to render the exploitation, and the preparation of the W.P., more effective.

In spite of these minor modifications, we have considered the four main divisions (Northern, Southern, Eastern and Western) as approximately constant throughout the period. Thus (fig. 2), the predominance of the Northern Kanara division was undisputed during the whole period. The relative importance of the Western Kanara division also remained fairly constant. On the other hand, the new Eastern Kanara division, which was created at the expense of the Southern Kanara division (which lost the valuable forest *pethas* of Yellapur and Mundgod), played an important role as soon as it came into being. We will dwell later on, while analyzing the forest revenue by type of forest produce, on the factors of relative economic importance of the several divisions.

A global reading of the graph in figure 3 shows a slow but steady growth of the nominal Forest Revenue till the eve of the First World War. The revenue becomes unsteady during the period 1920-30, then slumps down till the end of the 1930's, after which there was a brusque and substantial recovery during the 1940's. The balance of Receipts over Expenditure (fig. 4) was always positive, the expenditure representing on an average about 50% of the receipts. The Forest Department, as a matter of fact, was quite productive, and its financial surpluses undoubtedly went to feed the general budget of the Presidency.

The composition of the Forest Revenue

The main sources of revenue of the Forest Department were the sale of forest produce (timber, firewood, minor produce) and the grazing taxes.

Revenue Head I comprises the produce exploited by governmental agency and Revenue Head II the produce exploited by private agency. Head I scores heavily over Head II both in proportion (fig. 5) and value (fig. 6), even during the 1910's and 1920's when the global trend of the revenue was rising substantially (it declined thereafter and fell back in 1940 to its 1910 level). The distribution of receipts according to type of produce under each Head indicates that timber represented 80 to 90% of receipts under Head I (fig. 7), whereas private enterprises (Head 2) showed a greater diversity of activities (fig. 8). From 1886 to the beginning of this century, the relative importance of the various types of produce under Head 2 remained more or less constant. Later, the share of timber increased gradually to become 80% of the revenue in the 1940's. This period also witnessed an increase in the revenue of private agencies (fig. 6). It would thus appear that the timber trade was more remunerative than trade in any other forest produce. We do not have the corresponding series of price figures, but we do know that forest exploitation during this period was confined to the extraction of a few valuable species, such as teak. It is clear that the revenue from the timber trade had a direct influence on the total revenue, since curves 11 & 3 show grossly parallel variations.

The timber sales reflected the general state of the economy. Boosted as it was by the construction of the Southern Maratha Railway, the demand for timber and firewood was already rising towards the close of the 19th century. A major share of the timber went to feed the Bombay wood market. A good harvest of cotton and cereals usually raised the demand[19]. The forest economy was also influenced by external factors. For example, when prices plummeted in Europe in 1891, the Bombay market was immediately affected, and the Forest Revenue of North Kanara consequently declined[20]. Similarly, when the events which rocked Burma in the 1940's put a stop to the supply of Burmese teak to India, forest exploitation increased in North Kanara, and the Forest Revenue of the district rose considerably.[21]

The fluctuations were at times due to more technical reasons, such as variations in the quality of the produce put up for sale, or attacks by pests, or failure of a big contractor to fulfil his contract within the prescribed time limit.[22]

A joint study of figures 9, 10 and 11 raises certain questions that would call for closer scrutiny:

- Figures 9 and 10 show that output and revenue do not always fluctuate in the same manner. Thus the output figure in 1891 was higher than in 1886 though the revenue realized was less. This fact may have been linked to general economic trends. But we find from fig. 10 that the quantity of wood given away as "free grants" was bigger in 1891 than in 1896. Why was the share of free grants so generous in 1891? What was the strategy followed by the foresters? Did the low level of prices have anything to do with this behaviour?
- Although the output in 1927 was smaller than in 1922, the revenue was larger. Yet, the share of the right-holders who paid preferential rates was higher in 1922, and so was the output by private agency. This could indicate a rise in prices in 1927. It could also signify that the species normally felled by private companies were commercially less valuable. We know that the State reserved the right to extract sandalwood, but the production of sandalwood in North Kanara was low (while it was important in Coorg).

We have no information regarding the sites of extraction by type of agency. For example, we do not know whether State exploitation was more intensive than private exploitation in the teak-producing zones.

Fig. 12 clearly demonstrates the lead taken by North Kanara in the production of timber (except in the year 1896 when the division lost Karwar and Kumta). This could explain the economic predominance of this category of woods in the district. An analysis of the statistics concerning firewood confirms the hypothesis generated by the study of timber (figures 13-14-15). The proportion of firewood in the actual production of the Northern Kanara division appears to have been low since the turn of this century. Western Kanara division then became the major producer. This seems logical enough, the coastal forests being less valuable, and the coastal region being a densely populated area where firewood was always in great demand. As regards the exceptionally high production figure for 1896 (which remains to be explained), it is to be noted that it is the share of the right-holders in the production which went up. The creation of the Western Kanara division was a strategical decision. If the Forest Department had the requirements of local population in mind when they took this measure, it was not out of a fit of philanthropic zeal, but rather with a view to specializing the zones of production according to the value of produce.

Remark

Since the colonizers considered the forest to be the principal source of revenue for the district, an in-depth analysis of the market would undoubtedly be a rewarding subject of study.

The timber-merchants of North Kanara were foreign to the district. They hailed from Goa, Bombay, Dharwar or Belgaum, and used to export their goods outside the district. Thus, in 1891 and 1894, 563,668 cft and 698,876 cft of wood respectively were sold to strangers, while only 6,242 cft and 5,978 cft respectively found their way to the local market. On the other hand, there was no local private entreprise in the wood transforming industry, and the saw-mills set up in the 1920's (of which there were seven at one time) were all state-owned. The inhabitants of the district who lost their forests and the right to use them freely were in no way benefitted by the economic exploitation of the forest. Thus exploitation for export purposes was carried on for more than a century, the value of these exports remaining to be precisely ascertained, and this activity would have to be analyzed in detail if one is to understand the social problems of the district.

The composition of Forest Expenditure

The total expenditure always represented at least 50% of the receipts. But fig. 16 shows that the expenditure under the heads "Work" and "Others" (the latter including salaries, buildings, etc.) commonly swallowed anything between 90 to 100% of the total expenditure. The trend of expenditure under the head "Timber" (fig. 17) followed the same pattern as that of "Work". The fluctuations in the total expenditure (fig. 3) were also similar to the fluctuations in the expenditure for timber (fig. 17).

Clearly then, the British forest administration was not unduly bothered about investment, but concerned itself mainly with exploitation. Undoubtedly, as we shall see later, a development of forest research and an increase in the area of plantations did occur. But the money so invested appears next to negligible when compared to the revenue earned. It is a fact that the Forest Department always had to prove conclusively that it was making profits (the non-profitability of a Forest Department was one of the main objections that had been raised against Brandis), and it is also true that the costs of production ran high due to the technical problems posed by forest exploitation (building of roads, etc.). The amounts invested in improvement were nonetheless ridiculously low (being almost always less than 5,000 Rs), while the costs of extraction varied between 500,000 and 1,000,000 Rs.

The pattern of allocation of the expenditure on improvement (fig. 19) was particularly revealing as far as the strategy followed by the foresters is concerned. The British, while trying to develop a rational and profitable forest administration, were beset by various problems such as the annual forest fires and the question of property rights. That is why most of the investment effort made during the first twenty years of the period under study was directed towards fire protection (creation and maintenance of cleared firelines) and demarcation (i.e. delimitation of State forests on the ground, which could entail payment of compensations to dispossessed owners, and expenditure on enquiries). It is only in the 1920's that most of the expenditure on improvement was directed towards plantations.

Several conclusions from the above analysis of the budget statistics stand out in sharp relief:

- the Forest Department generated annually large financial surpluses;
- the economic value of the Forest Divisions was uneven and varied according to the types of forest stands that they possessed. Detailed surveys by divisions would be necessary to appreciate the ecological impact of forest exploitation in each case;
- the relative weight of the various agencies in the exploitation of forest produce was equally uneven. On this point also, a detailed study would be required to evolve a clear picture of the economic strategy of the forest administration;
- the output of exploited produce rose over the period under study. We still lack sufficient information regarding the types of species exploited, the diversity of which most certainly increased;
- only a minor share of the total expenditure was invested in improvement.

Further research will shed more light on the local economic, ecological and social impact of forest exploitation and of the development of forest administration and legislation.

THE WORKING PLANS

It was D. Brandis who first mooted the idea of Working Plans. He became interested in the growth of trees while working in Burma and was responsible for constructing the first yield tables for the teak stands. Under normal conditions of growth, the individuals pass from one class of diameter to another until they attain the exploitable size,

which again varies depending as to whether the objective is to produce timber, poles or firewood. The yield tables enable the foresters to decide when extraction should be started, and to undertake such operations of improvement or selection as may prove necessary. The foresters can also fashion and modify the stands according to the objectives pursued with the help of specific sylvicultural techniques.

The forest stands are sub-divided into "Blocks", or units of management. Each Working Plan provides general information relating to the local milieu and a description of the ecological features and of the forests of each Block. It then specifies the area covered by the plan and the technical, economic and occasionally ecological targets which it is proposed to reach. It also contains various information regarding market conditions, a description of the type of sylvicultural treatment proposed for meeting the set targets, a statement of the existing rights and privileges, a list of the local grazing rules, and finally a calendar of exploitation.

The analysis that follows is based on some 40 W.P. covering about 55% of the area of Reserved Forest in North Kanara. The aim of the study has been to bring out the salient features of the forest policy practised in the district, the unescapable conclusion being that the dominant purpose was profit-making even at the expense of local interest.

To facilitate the study of the data, the W.P. have been divided into two distinct chronological categories:

- the initial Working Plans, which were the first to be drafted for the zones concerned and which cover the period from 1895 to 1930;
- the Revised Working plans, which are simple revisions, modifications or extensions of the initial plans.

In the case of certain zones, we have located both the initial W. P. and one or two of the revised W.P., which has enabled us to get an idea of the forest management policy over a century.

The table on page 23 synthesizes a certain amount of data obtained from the 20 initial W.P. These data point to the following conclusions:

1. Even though the area covered by the W.P. varied considerably (it ranges from 559 acres for W.P. n° 13 to 138,182 acres for W.P. n° 14), we have calculated whenever possible the ratio of Minor Forest to Forest Proper. It appears that the area of Minor Forest is 2 to 40 times less than that of Forest Proper. In certain forest zones that were

Table - The Workings Plans of North Kanara (1895-1926): some basic features

W.P. No.	Date	Area (acres)					Type of products			Type of treatment	Objectives		
		M.F.	F.P.	Total	Division	Forest type	timber	log	firewood		1	2	3
1	1895		29965	30861	N.K.	Valuable	+			Gardening	+		
2				63000	N.K.	Valuable	+			Gardening	+	+	
3	1901	5217	104763	109981	S.K.	Valuable	+			Selection system		+	
4	1904	42610	95572	138182	N.K.	Impoverished			+	Coppice system		+	+
5	1904			42570	N.K.	Impoverished		+	+	Coppice with standard			+
6	1906	20997	37863	58861	N.K.	Impoverished		+	+	Coppice system	+	+	
7		3175	54273	61258	E.K.	High teak	+			Improvement felling		+	
8				712	W.K.	Teak plantation		+		Coppice with standard		+	
9	1908	3131	34107	41875	W.K.	Valuable	+	+		Selection felling	+	+	
10	1909	27900	33185		W.K.	High teak	+			Selection system		+	
11		601	24151	25843	S.K.	Tali palm				Selection felling	+	+	+
12	1910			11485	W.K.	Valuable	+			Improvement & cultural operation	+		
13				559	W.K.	Casuarina plantation			+	Clear felling		+	
14				36330	W.K.	Valuable	+		+	Coppice with standard		+	
15	1911			8228	S.K.	Valuable	+		+	Coppice with standard		+	
16	1912	3440	34543	37984	S.K.	Junglewood	+	+		Selection system		+	
17	1915			7858	W.K.	Junglewood			+	Coppice with standard			+
18	1916			17843	C.K.	Valuable	+			No regular system	+	+	
19				18902	E.K.	Valuable		+		Regular felling		+	
20	1926	12408		12408	N.K.	Minor Forest			+	Simple coppice			+

NOTE:

M.F. : Minor Forest
F.P. : Forest Proper
Total : M.F. + F.P. + Miscellaneous
Valuable : teak and other valuable timber (matti, honi, kindal, jambul)
Junglewood : less valuable trees

(W.P. Numbers: see annexed list)

Objectives:
1. Improvement
2. Increasing outturn capacities for selling outside
3. local supply

List of North Kanara Working Plans (1895-1926)

(for fuller references, see bibliography *in fine*)

1. Gund Working Circle
2. Haliyal and Supa Ranges
3. Yellapur Above Ghats Working Circle, Blocks XIII to XVIII & XXI
4. Karwar Fuel Reserves
5. Haliyal Teak Pole Forest
6. Supa Fuel Reserves
7. Mundgod High Forest, Blocks XXII & XXIII
8. Kadra & Sulgeri Teak Plantations
9. Ankola High Forest, Blocks XXIV & XXV
10. Kalinadi Slopes, Block XXVI of the Western Kanara Division
11. Honavar Tali Palm Forest
12. Soppinhosalli High Forest, Block XXVII
13. Casuarina Plantations, Kasarkod
14. Ankola-Kumta Coast Fuel Reserves
15. Sirsi Town
16. Yekambi Sonda High Forest, Block XXVIII
17. Chandavar Forests
18. Arbail Slopes, Block XII
19. Kirwatti Teak Pole Area
20. North Kanara Coast Fuel

---

21. Nirsol Slopes Forests, Block XVIII
22. Yellapur and Mundgod Teak High Forest
23. Bhagwati Blocks VIII, IX and XX
24. Ankola Kumta Honavar Bhatkal Below Ghats Inland Forests
25. Honavar Tali Palm Forests
26. Soppinhosalli High Forest, Block XXVII
27. Haliyal Teak Pole Forests
28. Nagzari Valley, Kalinadi-Kalineri Slopes
29. Casuarina Plantations in Kanara Western Division
30. Castle rock Fuel Supply.
31. Gund Forests, Blocks X & XI
32. Karwar Fuel Reserve.

considered to be sparsely populated, the quota of forest land conceded to the local population for the exercise of their "privileges" was scanty. The authors of the W.P. do not advance any population figures, but they simply state that these zones are less intensively used than, for example, the coastal regions. In the forest zones where the forest cover was dense and rich and the population sparse, it often happened that not even a single plot was reserved for the permanent domestic use of the local inhabitants. In such cases, the concession of privileges was left to the discretion of the foresters. The populations living in the forest areas of the interior of the Ghats were thus little protected by the settlement rules, as there existed no clear provisions for them in these zones.

2. From the chronological point of view, the first W.P. to be drafted were those of the Northern Division. Then came those of the Western Division, and still later those of the Southern Division. The primary importance then attached the Northern Division, which we already mentioned in the statistical analysis, is hereby confirmed.

3. Out of the 20 W.P., 12 relate to valuable forest stands, 4 to degraded ones, 2 to pure plantations and 2 to Minor Forests. The main effort was thus directed towards the rich stands, which could yield good profits in the short run.

4. Out of the 12 above mentioned W.P., (n° 1, 2, 3, 7, 9, 10, 12, 14, 15, 16, 18, 19), all excepting one (n° 15) were aimed at producing timber or logs specifically for export outside the district. Only two (n° 1 and 2) were designed to improve the quality of the stands. Of course, the timber produced on a plot subjected to a W.P. would not eventually be sold outside only, but what is important here is the official desire manifested in the plans.

5. The produce obtained from the working of the W.P. n° 4, 5, 6, 9, 11, 17 & 20 was to be used for the production of firewood. The first three W.P. concerned very degraded stands. This produce was not only meant for local consumption, but primarily for the Southern Mahratta Railway. While the towns of Ankola, Kumta, Gokarn and Gangali consumed respectively 200 to 300, 800 to 1,000, 900 to 1,100 and 1,200 to 1,300 tons of firewood **annually**, the **monthly** requirements of the Railway were 2,000 tons[23]. The Forest Department estimated in 1886-1887 that the extension of the railway line to the South of Belgaum would increase the consumption to 3,000 tons per month.[24]

6. W.P. n° 8 and 13 related to small areas of pure plantations. The aim of the W.P. was to plant teak and to try to work out by trial and error the best method of obtaining an optimal increment.

7. As regards the casuarina plantation (n° 13), the aim was to produce a variety of firewood which, due to the high costs of production involved, could not in any case be sold in the local market.

8. The *Working Plan for the Honavar Tali Palm* (n° 11) is especially significant because it is indicative of the anxiety of the foresters to market as many kinds of forest produce as possible. The pith of the *tali*, which was traditionally collected by the Mahrattas, was made into flour, and formed a subsidiary element in the diet of the Mahrattas and of the fishermen of the coast. When *kumri*, the sole source of revenue of the Mahrattas was banned in 1890, the demand for *tali* increased as it now became imperative to find additional sources of food. The Forest Department at this juncture decided to step in and assumed the control of the species in the name of conservation. In order to minimize exploitation, the Government fixed a family quota, which meant that a family could exploit free only a restricted number of trees. For every tree exploited in addition to the quota, a tax was to be paid. As a matter of fact, in the paragraph stating the objectives of the W.P., we find that the aim pursued was "to systematize the exploitation of the palm, not only for supplying local wants, but also for yielding a considerable annual revenue". For the sake of a relatively small amount of additional revenue (the tax amounted to 2 Rs. per tree or 14 As for every 100 leaves), the Forest Department was thus prepared to impose unpopular measures, which entailed a deterioration of the living standards of the people.

However, there were also social groups that were favoured by the Forest Department. The latter, under pressure from the Governement, set up a Working Plan (n° 30) for an area of 2,056 acres of land in order to satisfy the firewood requirements of the colony of the Customs & Railways employees which was established at Castle Rock (Northern Division) in connection with the extension of the Southern Maratha Railway.

This initial set of W.P. advocated the following sylvicultural techniques:

- "jardinage", which consisted in selecting good individuals from amongst the stands of quality;
- the selection system, i.e. favouring the growth of the economically more valuable species by the simple process of elimina-

tion of those species that were devoid of all commercial value (at least at that point of time);

- the improvement system, whereby the quality of the stands was improved by felling the trees that were not in conformity with the required norms;
- the coppice system, which was applied to degraded stands;
- the coppice with standard system, which favoured the development of the best shoots capable of pole re-growth;
- clear felling, which was practised only on casuarina plantations.

The ecological impact of these techniques was theoretically negligible, but it would nonetheless be important to have an idea of the damages caused by the fellings. The declared purpose was to encourage the growth and dominance of certain commercially valuable species at the expense of others which tended to disappear altogether from the scene. The W.P., as a rule, being supposed to take the increments into account, should have avoided over-exploitation. But of course it all depended on the minimum diameter fixed for exploitation.

The second generation of W.P. were drafted along the same lines as those of the first generation: there was no change of policy. The revision of a W.P. often consisted in drawing up a balance sheet of the preceding period of management, in setting new guidelines if necessary, and in suggesting occasional administrative modifications (i.e. size of the Blocks, areas allocated to grazing,etc.). In the case of the two W.P. of which a revised version is available (n° 11: Revised W.P. n° 25, and n° 5: Revised W.P. n° 27), no change whatsoever was introduced.

A general reading of this second generation of W.P. shows however that various convictions were gaining ground, as though thirty years of experience had lent confidence to the foresters. Two tendencies are particularly noticeable:

1. Teak was indisputably considered as the most valuable species of all. Moreover sylvicultural research, which was being conducted with increasing efficiency since the turn of the century, was now beginning to bear fruit. The growth of teak, a species that had been thoroughly studied, was being well mastered, and plantations now appeared easier to carry out and proved more successful. The reports underline the need to upgrade the quality of the stands, to improve their maintenance and durability in order to provide for continued production for the decades to come, and above all to ensure the dominance of the species. The treatment prescribed was clear felling accompanied by artificial regeneration (W.P. n° 22, 23, 24, 27, 31).

2. The forest was now clearly considered as a source of revenue that had to be tapped to the utmost of its capacity. In the reports, one comes across remarks such as these: "(The objective is to) work the forest regularly for timber of such species and size as will ensure a profit" (n° 26), "... to obtain from the forest the maximum financial return" (n° 24, 29), "...(to exploit the forest to its) fullest capacity and (to exploit) the existing marketable timber" (n° 31), etc. Exploitation was being intensified, so that the forest revenue began to rise decisively from the 1920's onwards, and artificial regeneration simultaneously increased, as evidenced by the evolution of the various heads of improvement expenditure (fig. 19).

In a way, the intensification of sylvicultural operations in this forest area which it was sought to exploit to the maximum of its capacities rendered all human domestic activities there undesirable. The Forest Department, while carrying out its *taungya* experiment, which consisted in sowing *ragi* between the rows of young teak during the three years immediately following their plantation, found itself having to contend with simmering (though never outspoken) resentment from the local population. The cereal was cultivated by the peasants, who reaped the benefit of the harvest. In return they were to weed out the plantations, which reduced the maintenance cost for the Forest Department (W.P. n° 22). This system, which was traditionally practised in Burma, had been observed there by D. Brandis, who had later tried to improve it and to introduce it on the teak plantations.

CONCLUSION

Thus, after an exploratory phase during which the productive capacity of the various species and their ability to command a market had been experimented upon, the Forest Department set about putting into practice the technical methods which were deemed to have proved conclusively successful. External demand had increased due to the growth of the railway network (teak for sleepers, firewood for the engines), and this had created a climate both of economic confidence and of pressing necessity, which acted as a fillip to the determination of the foresters. Ecological considerations did not yet figure prominently amongst the priorities expressed in the W.P. The peasant, as a man who practised *kumri* cultivation, raised cattle and kindled forest fires, appeared more and more in these texts as a potential nuisance.

It is to be noted that the underlying philosophy of the W.P. of North Kanara was fully consonant with the general tendencies of British forestry throughout India. The official literature does not record the views of innovative foresters (if there were any), and we do not

know whether there existed an opposition within the Forest Service advocating a policy where man would find a place.

GENERAL CONCLUSION

This preliminary approach to the history of forestry in pre-Independence North Kanara has enabled us to outline the logic of the forest management strategy adopted by the British colonial State. By promulgating a code of forest laws, the State tended to take over the control of the forest zones in a such a way as to displace the original inhabitants, and to become the main beneficiary from the exploitation of forest produce. This forest produce not only became a substantial source of revenue for the State exchequer, but also contributed to the expansion of the Imperial State through the construction of the railways.The foregoing analysis of the statistics of the Forest Department has made it clear that the demand for timber and the forest revenue were closely linked. We have also shown that about 50% of the surplus revenue generated by the forests of the district was swallowed by the general budget of the Bombay Presidency. The forests of North Kanara were therefore an important asset to the Govemment. This form of forest management, the profits of which were diverted towards institutions or individuals outside the district, altered the local life conditions. The building of infrastructures (such as forest roads, bridges and so on) made the forests much more accessible than they had ever been, and allowed an intensification of forest exploitation. Sylviculture also made its contribution to the alteration of the local landscape. Environmental conditions were undergoing fundamental change.

We have briefly explained at the beginning of this paper how the agriculturists of North Kanara were closely dependent on the forest for the pursuance of their trade. The forest laws deprived them of their rights to free use of the M.F.P., to free grazing, to the practice of itinerant cultivation. Through administrative texts such as the W.P., one can feel the implicit confrontation between two worlds characterized by different ends and means.

The peasant, who had virtually no means to defend himself apart from illegal resistance, strove to preserve his system of production and his means of livelihood, while the forester, with the law on his side, claimed to champion the global interests of the "people of India", which were interpreted in such a way as to coincide with those of the colonial State. The official texts issued by the Forest Department, in actual fact,

implicitly referred to the local people as a source of problems and obstacles which stood in the way of the rationalization and intensification of forest management.

Those economic and human problems which underlie most of the W.P. constitute in many ways the antecedents of the ecological and economic situation which prevails in North Kanara today. In order to arrive at a proper understanding of the manifold dimensions of those problems, further research must be carried out in at least two directions:

1. The economic deadlocks generated by the forest administration and their repercussions on the local systems of production, living conditions and social structure.

The systems of production were badly shaken by the loss of forest areas and of the free use of forest resources. The sectors of the agricultural economy which suffered most were:

- **cattle-raising**, which was was the professional occupation of the Gavli pastoralists, and was also practised by many sections of the rural society (cultivators, tradesmen, etc.). This activity was increasingly hampered by the reduction of grazing areas, by the limitation of the authorized number of cattle-heads per family, and by the imposition of a grazing tax on every animal. The impact of these measures on the social groups concerned and their repercussions on the local economy have to be precisely measured.
- **kumri** (slash and burn) cultivation, the practice of which was first restricted, then altogether prohibited. The social groups that were entirely dependent on this form of agriculture had to find alternative modes of subsistence and in a general way to adapt to the altogether new life conditions which were thus thrust upon them.
- the **spice-gardens**, which although a vital element in the agricultural economy of the district, were not spared by the rules edicted by the Forest Department. By reducing the area of *betta* lands, and by prohibiting the lopping for green manure of certain species growing within the *betta* lands themselves, the Forest administration seriously unsettled a flourishing activity which was entirely dependent on the local natural environment.

The curtailment of the natural resource base on which the peasantry depended inevitably led to an increase of demographic pressure on an environment which, given the prevailing tropical ecological conditions, was prone to quick degradation.

2. The human response to the new conditions

The major aspects to be studied include:

- the modifications in the systems of production which the producers were forced to adopt in order to survive;
- the seasonal immigration of labourers from Goa or Dharwad, which most certainly made an impact on the environment as they did on the economic life of the district;
- the forms of popular resistance to the new measures, which was already very brisk at the beginning of this century. This resistance took various forms, ranging from the refusal to help in fighting forest fires to campaigns in the local press and to actual acts of physical violence. By its historical causes and by its modalities, this agitation is a precursor to the resistance movements which occur in the Western Ghats today.

This historical and ecological study, which will be undertaken now, will, it is hoped, help to show to what (considerable) extent development and the harmony between man and his environment are dependent on each other.

NOTES

1. *Gazetteer of the Bombay Presidency*, vol. 15, *Kanara*, part 1, by J.M. CAMPBELL, Bombay, 1883, p. 22.
2. STEBBING, E.P. *The Forests of India* , London, vol. 3, 1926, p. 7.
3. *Indian Law Reports, Bombay Series*, vol. III, Bombay, 1879 (pp. 452-785: "The Kanara Case").
4. *Op. cit.*, p. 486.
5. *Op. cit.*, p. 489.
6. *Op. cit.*, p. 711.
7. *Op. cit.*, p. 704.
8. *Op. cit.*, p. 552.
9. Forest Research Institute, *One Hundred Years of Indian Forestry*, Dehra Dun, 1961, vol. 1, p. 5.
10. STEBBING, *op. cit.*, vol. 1, p. 62: "The time arrived when, with the advance of modern civilisation and the increased demands of both population and trade, the diminution of the forests began to be regarded with a grave apprehension".
11. RIBBENTROP, B. *Forestry in British India*, Calcutta, 1900, p. 68.

12. *Kanara Gazetteer, op. cit.*, vol. 1, p. 417.

13. *Ibid.*, p. 418.

13. *Ibid.*, p. 422.

15. *History of Forest Settlement Work in Kanara*, by G.F.S. COLLINS, Poona, 1924.

16. *Ibid.*, p. 36.

17. *Ibid.*, p. 20.

18. *Working Plan Report of Haliyal and Supa Ranges*, by T.R.D. BELL (1895), p. 5.

19. *Annual Report of the Forest Department in the Bombay Presidency*, 1891-1892, p. 17.

20. *Ibid.*, 1921-1913, p. 72.

21. *Ibid.*, 1941-1942, p. 39.

22. *Ibid.*, 1936-1937, p. 35, and 1929-1930, p. 19.

23. *Working Plan Report on Ankola-Kumta Coast Fuel Reserves*, by P.E. AITCHISON (1910), p. 10.

24. *Annual Report of the Forest Department in the Bombay Presidency*, 1886-1887, p. 70.

BIBLIOGRAPHY

I. WORKING PLANS

Gund Working Circle (Bell), 1895.

Haliyal and Supa Ranges of the Northern Division of Kanara District (Bell), 1895.

Yellapur above Ghat Working Circle, Blocks XIII to XVIII & XXI (Coppleston), 1901.

Karwar Fuel Reserves (Thomson), 1903.

Haliyal Teak Pole Forest (Coppleston), 1906.

Supa Fuel Reserves (Thomson), 1906.

Mundgod High Forest, Blocks XXII & XXIII (Aitchison), 1906.

Blocks VII-A and XX of the Supa Working Circle (Coppleston), 1906.

Honavar Tali Palm Forest (Aitchison), 1907.

Kadra and Sulgeri Teak Plantations (Pearson), 1908.

Ankola High Forest, Blocks XXIV and XXV (Pearson), 1908.

Kalinadi Slopes, Block XXVI of the Western Kanara Division (Pearson), 1908-09.

Soppinhosalli High Forest, Block XXVII (Aitchison), 1910.

Casuarina Plantation, Kasarkod, Blocks I and II (Pearson), 1910.

Ankola-Kumta Coast Fuel Reserves (Aitchison), 1910.

Sirsi Town (Aitchison), 1911

Yekambi Sonda High Forest, Block XXVIII (Aitchison), 1912.

Bhagwati Blocks VIII, IX and XX of the Kanara Northern Division (Miller), 1913-14.

Chandavar Forests in the Western Division of Kanara for the Fuel Supply of Kumta Town (Miller), 1915.

Block XII-A (Miller), 1915-16.

Arbail Slopes, Block XII of the Central Division of Kanara (Miller), 1916.

Kirwatti Teak Pole Area (Miller), 1916.

(Revised) Yellapur and Mundgod Teak High Forest (Edie), 1922.

(Revised) Gund Working Circle, Kanara Western Division (Hemmadi), 1925.

North Kanara Coast Fuel (Tuggerse), 1926.

(Revised) High Forest Old Series I to VII of the Kanara Northern Division (Davis), 1927.

Nirsol Slopes Forests, Block XVII of Kanara Eastern Division (Ratnagar), 1928.

(Revised) Bhagwati Blocks VIII, IX and XX (Ratnagar), 1929.

(Revised) Ankola-Kumta Honavar Bhatkal Below Ghats Inland Forests (Ratnagar), 1929.

(Revised) Honavar Tali Palm Forests (Kesarcodi), 1930.

(Revised) Soppinhosalli High Forest, Block XXVII (Kesarcodi), 1932.

Saudal Forests of Dharwar-Bijapur Division and of Haliyal and Mundgod Ranges (Kesarcodi), 1932.

(Revised) Haliyal Teak Pole Forests, Blocks VII-A and I to X of Kanara Northern Division (Kesarcodi), 1934.

Nagzari Valley, Kaliwadi-Kalineri Slopes (Kesarcodi), 1935.

(Revised) Casuarina Plantations in the Kanara Western Division (Vas), 1936.

Castlerock Fuel Supply of the Kanara Northern Division (Mufti), 1937.

(Revised) Gund Forests, Blocks X and XI (Kaikini), 1945.

Saudal Areas in Sirsi and Siddapur Talukas of the Kanara Eastern Division (Kaikini), 1952.

Sirsi Town Firewood Supply Plan (Nadgir), 1956.

(Revised) Haliyal Teak Pole of Haliyal Division (Korkahalli), 1958-59.

(Revised) Supa and Castlerock Forest (Wesley), 1959.

(Revised) Karwar Fuel Reserve, Kanara Western Division (Brito), 1960.

(Revised) Mundgod Teak Pole Forests (Korkahalli), 1960.

(Revised) Mundgod Teak Pole Forests (Krishnappa), 1966.

(Revised) Sandal Bearing Areas of Sirsi and Siddapur Talukas (Wesley), 1970.

Karwar and Honavar Divisions (Shanmukhappa), 1979.

(Revised) Haliyal Teak Pole Forests (Mulimani), 1986.

(Revised) Yellapur-Manchikeri Forests, Blocks XXIX to XXXIV of Yellapur (Chengappa), 1986.

II. OTHER OFFICIAL PUBLICATIONS

Goverament of India

Forest Research Institute, *One Hundred Years of Indian Forestry*, Dehra Dun, 1961, 2 vols., 160 and 210 p.

The Forest Department Code, 1904, Calcutta, 1906, 300 p.

The Indian Forest Act (Act VII of 1878) , Calcutta, 1884, 80 p.

Goverament of Bombay

Annual Report of the Forest Department in the Bombay Presidency (1886-1947) (except 1913-1921).

Code of Forest Privileges Sanctioned for the Kanara District , Bombay, 1944, 14 p.

Gazetteer of the Bombay Presidency, vol. 15, *Kanara* , part 1, by J.M. CAMPBELL, Bombay, 1883, 500 p.

History of Forest Settlement Work in Kanara , by G.F.S. COLLINS, Poona, 1924, 40 p.

Indian Law Reports, Bombay Series, vol. III, Bombay 1879 (The "Kanara Case", pp. 452-785).

Note on a Tour of Inspection in Some of the Forests of the Central, Northern and Southern Circles, by G.S. HART, Simla, 1917, 31 p.

Revised Kanara Permit Rules , Bombay, 1902, 10 p.

III. MISCELLANEOUS

BUCHANAN, F. *A Journey from Madras through the Countries of Mysore, Canara and Malabar* , London, 1807, vol. 3.

CHAMPION, H.G. *The Progress of Forestry in India During the Last Twenty Five Years* , Calcutta, 1938, 20 p.

RIBBENTROP, B. *Forestry in British India* , Calcutta, 1900, 245 p.

STEBBING, E.P. *The Forests of India* , London, 1922-26, 3 vols., 560-630-700 p.

APPENDICES

APPENDIX 1 : TABLES

FOREST REVENUE OF THE SOUTHERN CIRCLE OF BOMBAY PRESIDENCY (1886-1947) (Rs)

YEAR	TOTAL NORTH KANARA	TOTAL OTHER DISTRICTS	TOTAL SOUTHERN CIRCLE
1886	874316	559477	1433793
1888	721229	552324	1273553
1889	749734	575941	1325675
1891	571101	1011899	1583000
1892	739107	645264	1384371
1893	850814	680502	1531316
1894	896969	628058	1525027
1896	751657	689140	1440797
1899	678766	519071	1197837
1900	705570	481405	1186975
1901	922456	379528	1301984
1903	913696	432567	1346263
1904	905766	478638	1384404
1905	1108008	427639	1535647
1906	935278	412877	1348155
1907	890198	413317	1303515
1908	979245	431030	1410275
1909	812319	642025	1454344
1910	980445	411416	1391861
1911	1112004	461851	1573855
1912	1410701	497493	1908194
1913	1498963	519790	2018753
1922	1984910	832385	2817295
1923	1940566	672735	2613301
1924	2210455	644545	2855000
1925	1468045	1102204	2570249
1926	2589895	577297	3167192
1927	1729276	1208062	2937338
1928	2416178	536300	2952478
1929	2712510	586088	3298598
1930	1905510	467294	2372804
1931	1930933	408997	2339930
1932	1936871	394333	2331204
1933	1699731	392077	2091808
1934	1682974	422112	2105086
1935	1652559	430339	2082898
1936	1559107	331053	1890160
1937	1419259	429612	1848871
1938	1490166	235264	1725430
1939	1276238	369986	1646224
1940	1438695	368627	1807322
1941	2446074	523044	2969118
1942	3705769	939219	4644988
1943	7129488	1797146	8926634
1945	7641012	3545356	11186368
1947	5258001	1150084	6408085

Source : *Annual Report of Forest Administration in Bombay Presidency (1886-1947)*

BREAKDOWN OF NORTH KANARA FOREST REVENUE BY DIVISIONS (1886-1947) (Rs)

YEAR	N-K	S-K	W-K	E-K	C-K	K-C
1886	447602	112183	0	0	314531	0
1888	409124	99455	0	0	212650	0
1889	450620	121414	0	0	177700	0
1891	337668	80160	0	0	153273	0
1892	452441	115258	0	0	171408	0
1893	508272	87817	0	0	254725	0
1894	608012	72309	0	0	216648	0
1896	489982	178637	83038	0	0	0
1899	336013	43996	72657	0	0	0
1900	415554	198456	91560	0	0	0
1901	565241	253315	103900	0	0	0
1903	553878	274563	85255	0	0	0
1904	507772	333573	64421	0	0	0
1905	541933	433156	132919	0	0	0
1906	608028	246705	80545	0	0	0
1907	560486	33485	83157	213070	0	0
1908	676492	48694	70539	183520	0	0
1909	575837	49776	93353	93353	0	0
1910	632204	50294	87449	210498	0	0
1911	667909	46645	117552	279898	0	0
1912	841430	63732	188851	316688	0	0
1913	786990	72394	186021	453558	0	0
1922	823473	184463	296179	552244	128551	0
1923	879472	116663	229890	548802	165739	0
1924	983997	189039	296170	705635	0	35614
1925	970869	95530	227754	118031	0	55861
1926	1410468	185106	232593	700729	0	60999
1927	1267821	14781	236515	147841	0	62318
1928	1184355	173529	240532	725043	0	92719
1929	1326770	249512	192646	902570	0	41012
1930	1052202	115479	197386	540443	0	0
1931	927840	150270	217310	635513	0	0
1932	968119	137081	156775	674896	0	0
1933	958843	0	314793	426095	0	0
1934	1090626	0	162174	430174	0	0
1935	1154434	0	177051	321074	0	0
1936	986979	0	207618	364510	0	0
1937	885510	0	168339	365410	0	0
1938	1103478	0	175294	211394	0	0
1939	902608	0	182264	191366	0	0
1940	928831	0	229244	280620	0	0
1941	1782787	0	358880	304407	0	0
1942	2329274	0	913392	463103	0	0
1943	4128795	0	1413390	1587303	0	0
1945	4535002	0	1069952	2036058	0	0
1947	2431930	0	939213	1886858	0	0

Source : *Annual Report of Forest Administration of Bombay Presidency (1886-1947)*

FOREST DEPARTEMENT RECEIPTS & EXPENDITURE
IN NORTH KANARA (1886-1947) (Rs)

YEAR	TOTAL REVENUE	TOTAL EXPENDITURE	BALANCE
1886	874316	470164	404152
1888	721229	391804	329425
1889	749734	343486	406248
1891	571101	386072	185029
1892	739107	416209	322898
1893	850814	456761	394053
1894	896969	439241	457728
1896	751657	456964	294693
1899	678766	452437	226329
1900	705570	434828	270742
1901	922456	361936	560520
1903	913696	445292	468404
1904	905766	497219	408547
1905	1108008	466276	641732
1906	935278	451981	483297
1907	890198	455032	435166
1908	979245	523182	456063
1909	812319	549252	263067
1910	980445	613470	366975
1911	1112004	718672	393332
1912	1410701	705396	705305
1913	1498963	744969	753994
1922	1984910	1229699	755211
1923	1940566	1650683	289883
1924	2210455	954104	1256351
1925	1468045	1388380	79665
1926	2589895	1343067	1246828
1927	1729276	1403632	325644
1928	2416178	1434254	981924
1929	2712510	1435186	1277324
1930	1905510	1426247	479263
1931	1930933	1512917	418016
1932	1936871	1137781	799090
1933	1699731	1004420	695311
1934	1682974	911666	771308
1935	1652559	849659	802900
1936	1559107	810118	748989
1937	1419259	712606	706653
1938	1490166	702247	787919
1939	1276238	662323	613915
1940	1438695	739171	699524
1941	2446074	1096598	1349476
1942	3705769	2076432	1629337
1943	7129488	3544537	3584951
1945	7641012	5166902	2474110
1947	5258001	2648475	2609526

Source : *Annual Report of Forest Administration of Bombay Presidency (1886-1947)*

FOREST REVENUE IN NORTH KANARA, HEADWISE (1889-1947) (Rs)

YEAR	HEAD I	HEAD II	OTHERS
1886	697199	166795	10322
1888	530599	187914	2716
1889	568702	178898	2134
1891	400504	161470	9127
1892	508793	221107	9207
1893	686289	159030	5495
1894	707703	184578	4688
1896	578358	170176	3123
1899	529937	142634	6195
1900	542042	155485	8043
1901	779543	136132	6781
1903	772527	133322	7847
1904	787340	158836	- 40410
1905	927074	173776	7158
1906	796514	131073	7691
1907	720979	161867	7352
1908	771596	198042	9607
1909	576258	223601	12460
1910	735273	234512	10660
1911	856871	239407	15726
1912	1129201	262085	19415
1913	1177186	302383	19394
1922	1494395	460035	30480
1923	1391051	539058	10457
1924	1636314	549727	24414
1925	1668541	383856	- 584352
1926	2088749	412753	88393
1927	2019471	345031	- 635226
1928	1974782	376065	65331
1929	2102510	547065	62935
1930	1469758	375069	60683
1931	1555902	327178	47853
1932	1494817	417776	24278
1933	1266752	374684	58295
1934	1181489	444658	56827
1935	1200588	403175	48796
1936	1044504	477459	37144
1937	782810	592902	43547
1938	766985	609878	113303
1939	686348	552505	37385
1940	696995	689319	52381
1941	1558055	816818	71201
1942	3120048	441883	143838
1943	6122225	832006	175257
1945	6831712	376548	432752
1947	3349300	1182617	726084

Source : *Annual Report of Forest Administration in Bombay Presidency (1886-1947)*

BREAKDOWN OF NORTH KANARA FOREST REVENUE BY PRODUCTS UNDER HEAD I (1886-1947) (Rs)

YEAR	Timber	Firewood and charcoal	Bamboo	Sandalwood	Grass and other minor produce
1886	630992	4046	150	1790	60221
1888	463415	17819	20	4618	44727
1889	496481	3134	1	10917	58169
1891	306021	30217	10	7922	56334
1892	419718	23507	98	9061	56409
1893	567888	49147	1	11227	58026
1894	593564	72739	1	9264	32135
1896	518861	19273	0	4518	35706
1899	476636	21656	1055	4733	25857
1900	506996	9424	431	4742	20449
1901	744407	6082	227	4912	23915
1903	752266	11032	76	7296	1857
1904	743194	37419	9	6658	60
1905	902775	18401	16	5882	0
1906	781335	8409	0	6770	0
1907	697617	17452	0	5910	0
1908	742484	22948	0	6164	0
1909	533982	35931	0	6341	4
1910	686700	43579	5	4989	0
1911	808560	42605	0	5706	0
1912	1067577	49598	0	11933	93
1913	1134855	31650	10648	33	0
1922	1281847	170840	0	41470	238
1923	1303232	59780	18	27721	300
1924	1571206	40120	0	24979	9
1925	1612305	22449	0	33747	40
1926	2046703	2200	0	26507	13339
1927	1989640	1887	0	27881	63
1928	1927902	19144	0	27644	92
1929	2073216	5017	0	24113	164
1930	1450345	145	7	19147	114
1931	1538193	92	0	17484	133
1932	1482236	86	0	12368	127
1933	1254543	94	0	12010	105
1934	1171413	124	0	9879	73
1935	1189656	83	5	10746	98
1936	1044097	150	20	162	75
1937	764333	100	12	18341	24
1938	766288	2	35	573	87
1939	678736	2	3	7607	0
1940	684806	2	744	9787	1656
1941	1545719	53	674	11344	265
1942	3106985	2137	1471	9443	12
1943	6086016	16240	8786	11072	111
1945	6612050	211853	14	7787	8
1947	3043223	258586	2	47485	4

Source: *Annual Report of Forest Administration in Bombay Presidency (1886-1947)*

BREAKDOWN OF NORTH KANARA FOREST REVENUE BY PRODUCTS UNDER HEAD II (1886-1947) (Rs)

YEAR	Timber	Firewood and charcoal	Bamboo	Grazing and fodder grass	Other minor produce
1886	57120	41568	36877	20736	10494
1888	50407	44510	53908	22164	16925
1889	55600	30672	54403	22493	15730
1891	39418	44735	37824	25598	13895
1892	50502	60950	49667	45302	14686
1893	38748	37644	45354	23669	13615
1894	52192	43236	53406	24290	11454
1896	58493	38868	38424	21141	13250
1899	56968	27829	28406	22119	7312
1900	61622	35157	19484	27732	11490
1901	35747	42216	22114	26208	9847
1903	40900	34736	21441	23156	13089
1904	64945	22801	25840	32401	12849
1905	60512	22872	22911	52550	14931
1906	51453	16884	18972	24821	18943
1907	59458	23925	25172	33143	20169
1908	90263	33079	26821	30230	17649
1909	92012	59189	19536	33963	18901
1910	124296	29493	30295	31359	19069
1911	124184	29726	32942	29816	22739
1912	123925	46794	36512	31797	23057
1913	153014	60197	37460	29509	22203
1922	322201	40859	49866	31134	17239
1923	374737	67747	50321	32555	13698
1924	401334	49568	45142	31920	21763
1925	243321	48934	48240	29445	13916
1926	251031	57130	55996	28959	19637
1927	191764	53510	53707	27803	18247
1928	211023	55785	54230	29234	25793
1929	369316	63220	60014	29374	25141
1930	251804	50469	48051	16629	8116
1931	171458	54505	47621	29036	24558
1932	235278	58170	53553	60390	10385
1933	229413	62844	45844	23973	12610
1934	302786	56299	50966	22918	11689
1935	247201	74925	48466	22680	9903
1936	344057	63353	34969	26005	9075
1937	451287	70458	47909	11705	11543
1938	485469	67024	47311	157	9917
1939	435460	68414	42045	61	6525
1940	556480	74968	51251	22	6598
1941	654294	100912	56444	9	5159
1942	286988	92021	55845	2	7027
1943	489250	207016	49325	16	86399
1945	142830	110129	91490	4	32095
1947	808559	235851	81293	5	56909

Source : *Annual Report of Forest Administration in Bombay Presidency (1886-1947)*

VOLUME OF TIMBER OUTTURN BY DIVISION
IN NORTH KANARA (1886-1947) (in Cft)

YEAR	N-K	S-K	W-K	E-K	C-K	K-C
1886	414279	12955	0	0	49594	0
1891	398509	76508	0	0	199225	0
1896	84903	267831	196622	0	0	0
1901	264413	209773	86977	0	0	0
1906	552267	180109	91445	0	0	0
1911	710725	22483	213909	267280	0	0
1922	1025000	126000	136000	533000	257000	211000
1927	694000	264000	251000	394000	0	21100
1931	848050	380050	230050	514000	0	0

VOLUME OF TIMBER OUTTURN BY AGENCY
IN NORTH KANARA (1886-1947) (in Cft)

YEAR	GOVERNMENT	PURCHASERS	FREE GRANTS	RIGHT HOLDERS	TOTAL
1886	306781	134700	35347	0	476828
1891	500102	116651	57489	0	674242
1896	267846	219649	46815	15046	549356
1901	371529	154689	34945	0	561163
1906	589816	202811	31194	0	823821
1911	776205	412623	25569	0	1214397
1922	949000	1085000	43000	0	2077000
1927	876000	713000	10000	215000	1814000
1931	928000	966000	23000	55150	1972150

Source : *Annual Report of Forest Administration in Bombay Presidency (1886-1947)*

VOLUME OF FIREWOOD OUTTURN IN NORTH KANARA BY DIVISION (1886-1931) (in Cft)

YEAR	N-K	S-K	W-K	E-K	C-K	K-C
1886	2223832	60319	0	0	92106	0
1891	689484	185616	0	0	1150543	0
1896	567251	2153113	8805559	0	0	0
1901	418720	55686	825369	0	0	0
1906	279871	127968	1381519	0	0	0
1911	796461	521697	987364	170554	0	0
1922	677000	463000	1773000	222000	1046000	0
1927	706000	1582000	1828000	587000	0	1057000
1931	697000	1639000	1983000	832000	0	0

VOLUME OF FIREWOOD OUTTURN IN NORTH KANARA BY AGENCY (1886-1931) (in Cft)

YEAR	GOVERNMENT	PURCHASERS	FREE-GRANTEES	RIGHT-HOLDERS	TOTAL
1886	52340	2323070	847	0	2376257
1891	494946	1528884	1813	0	2025643
1896	134761	2360362	0	9030800	11525923
1901	172969	1124976	1830	0	1299775
1906	205784	1579328	4246	0	1789358
1911	593584	1874992	7500	0	2476076
1922	1223000	2919000	39000	0	4181000
1927	26000	3928000	13000	2144000	6111000
1931	4000	3674000	8000	2000000	5686000

Source : *Annual Report of Forest Administration in Bombay Presidency (1886-1947)*

VARIATION OF MAIN HEADS OF FOREST EXPENDITURE
IN NORTH KANARA (1886-1947) (Rs)

YEAR	WORK	IMPROVEMENT	OTHERS	TOTAL EXPENDITURE
1886	372048	10352	87764	470164
1888	234352	9061	148391	391804
1889	202251	14830	126405	343486
1891	208656	23028	154388	386072
1892	177980	48538	189691	416209
1893	278724	37874	140163	456761
1894	272978	47899	118364	439241
1896	266235	64542	126187	456964
1899	288591	32653	131193	452437
1900	253190	35393	146245	434828
1901	211665	26008	124263	361936
1903	254475	33423	157394	445292
1904	285769	30160	181290	497219
1905	272804	20926	172546	466276
1906	243514	21961	186506	451981
1907	227024	41841	186167	455032
1908	273278	29744	220160	523182
1909	301381	31964	215907	549252
1910	360335	23553	229582	613470
1911	358303	24323	336046	718672
1912	379539	25760	300097	705396
1913	445701	30283	268985	744969
1922	638507	50954	540238	1229699
1923	1047565	46433	556685	1650683
1924	727526	48428	178150	954104
1925	790371	35979	562030	1388380
1926	804659	27635	510773	1343067
1927	1192809	27523	183300	1403632
1928	938291	32140	463823	1434254
1929	907441	33018	494727	1435186
1930	937725	37155	451367	1426247
1931	1009362	37666	465889	1512917
1932	749659	38285	349837	1137781
1933	562053	41164	401203	1004420
1934	484440	42242	384984	911666
1935	367636	42748	439275	849659
1936	375213	35527	399378	810118
1937	261986	34729	415891	712606
1938	241554	40809	419884	702247
1939	227868	40896	393559	662323
1940	278870	41670	418631	739171
1941	589566	48171	458861	1096598
1942	1970516	45009	60907	2076432
1943	3048468	37330	458739	3544537
1945	5385693	61443	- 280234	5166902
1947	1964873	220458	463144	2648475

Source : *Annual Report of Forest Administration of Bombay Presidency (1886-1947)*

VARIATION OF EXPENDITURE UNDER HEAD "TIMBER" IN NORTH KANARA (1886-1947)

YEAR	REVENUE	EXPENDITURE
1886	688112	342418
1888	513822	188223
1889	552081	158667
1891	345439	154227
1892	470220	129713
1893	606636	201760
1894	645756	202206
1896	577354	217545
1899	533604	241745
1900	568618	210753
1901	780154	155952
1903	793166	242417
1904	808139	264580
1905	963287	259277
1906	832788	233106
1907	757075	222240
1908	832747	253406
1909	625994	291702
1910	810996	313766
1911	932744	320567
1912	1191502	347062
1913	1287869	416261
1922	1604048	568550
1923	1677969	988671
1924	1972540	697457
1925	1855626	769670
1926	2297734	802321
1927	2181404	1161240
1928	2138925	923440
1929	2442532	905033
1930	1702149	935403
1931	1709651	1007219
1932	1717514	748062
1933	1483956	560706
1934	1474199	483233
1935	1436857	366434
1936	1388154	373856
1937	1215620	260326
1938	1251757	240135
1939	1114196	224526
1940	1241286	272693
1941	2200013	587639
1942	3393973	1945907
1943	6575266	3009692
1945	6754880	4072253
1947	3851782	1799422

Source : *Annual Report of Forest Administration of Bombay Presidency (1886-1947)*

APPENDIX 2 : FIGURES

Fig 1 : PERCENTAGE OF NORTH KANARA REVENUE IN SOUTHERN CIRCLE REVENUE
(1886-1947)

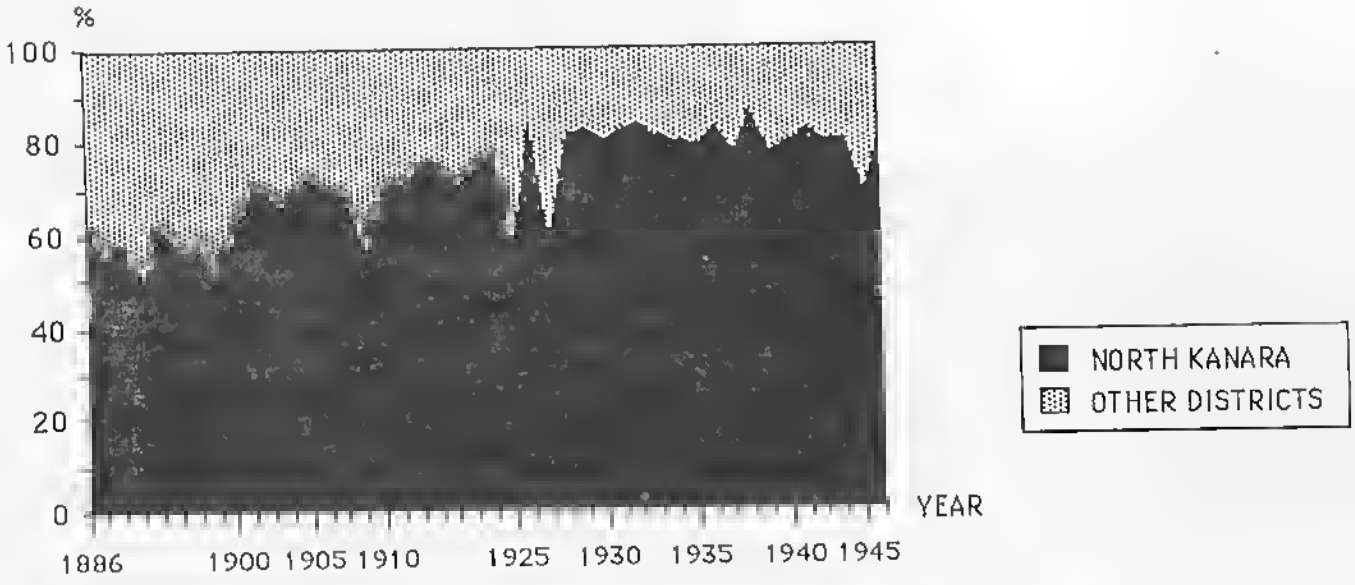


Fig 2 : BREAKDOWN OF NORTH KANARA REVENUE BY DIVISION (in %)
(1886-1947)

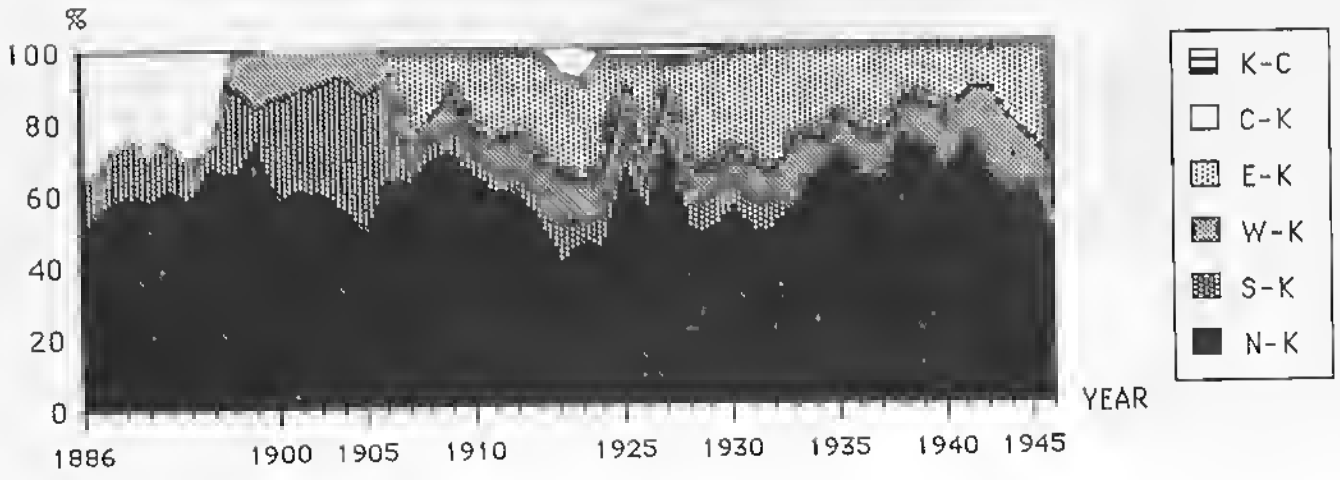


Fig 3 : FOREST DEPARTEMENT RECEIPTS & EXPENDITURE IN NORTH KANARA (1886-1947)

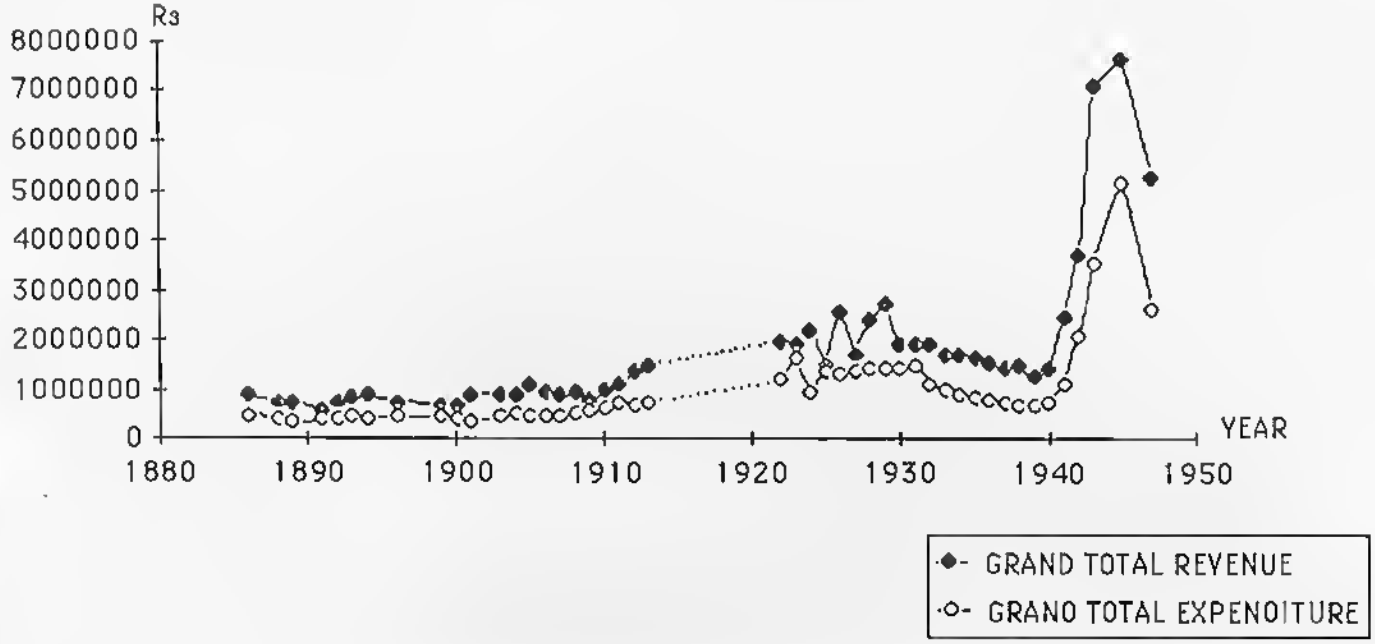


Fig 4 : PERCENTAGE OF EXPENDITURE ON TOTAL REVENUE IN NORTH KANARA (1886-1947)

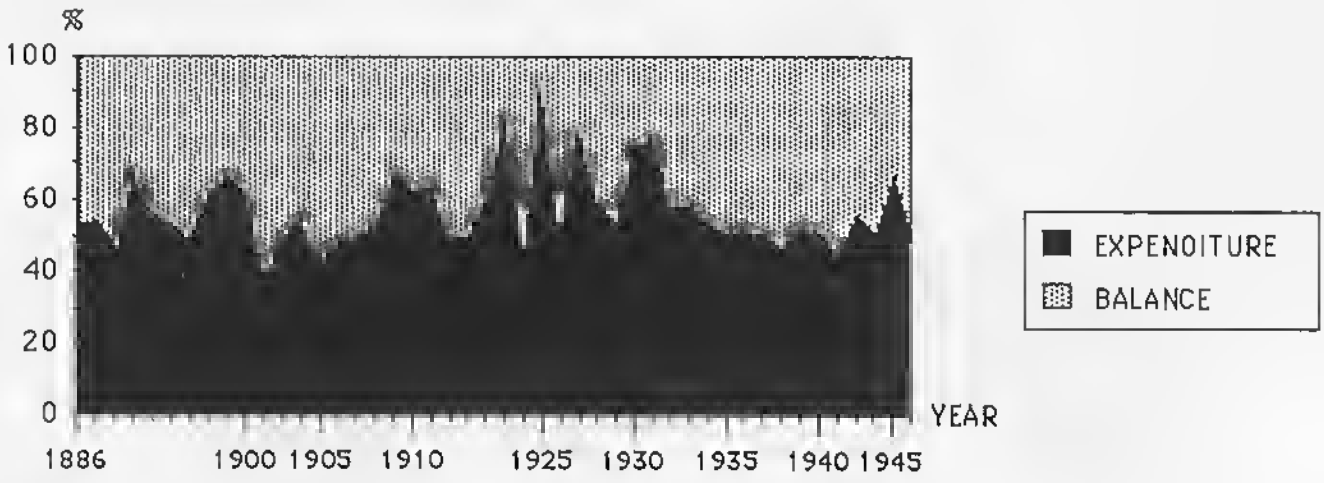


Fig 5 : PERCENTAGE VARIATION OF HEADS I & II IN TOTAL REVENUE IN NORTHERN KANARA (1886-1947)

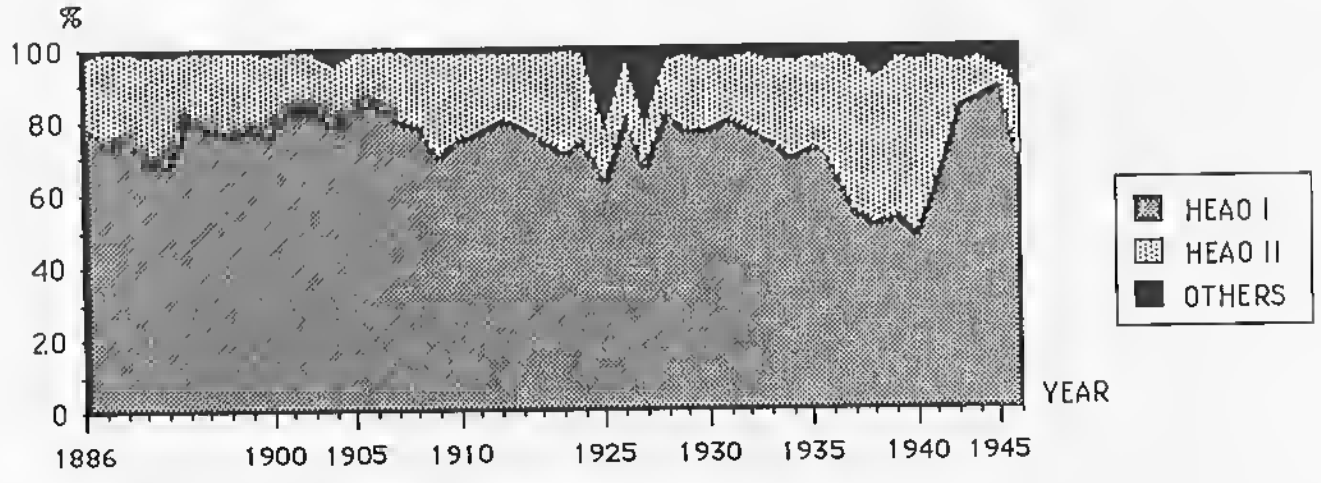


Fig 6 : VARIATIONS OF REVENUE COLLECTED UNDER HEADS I & II IN NORTH KANARA (1886-1947)

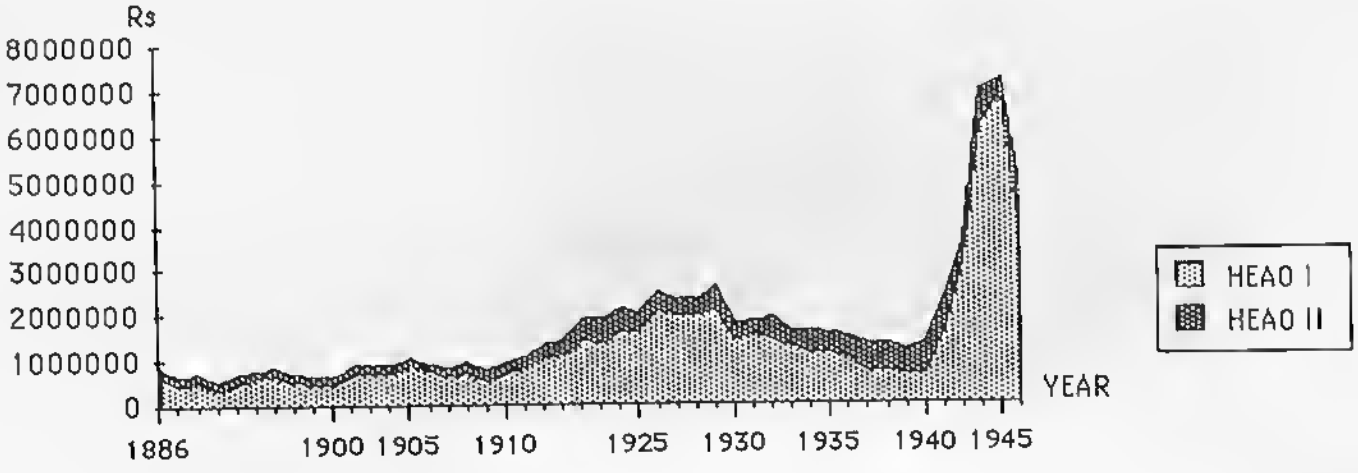


Fig 7 : BREAKDOWN OF REVENUE BY PRODUCTS UNDER HEAD I IN NORTH KANARA (1886-1947)

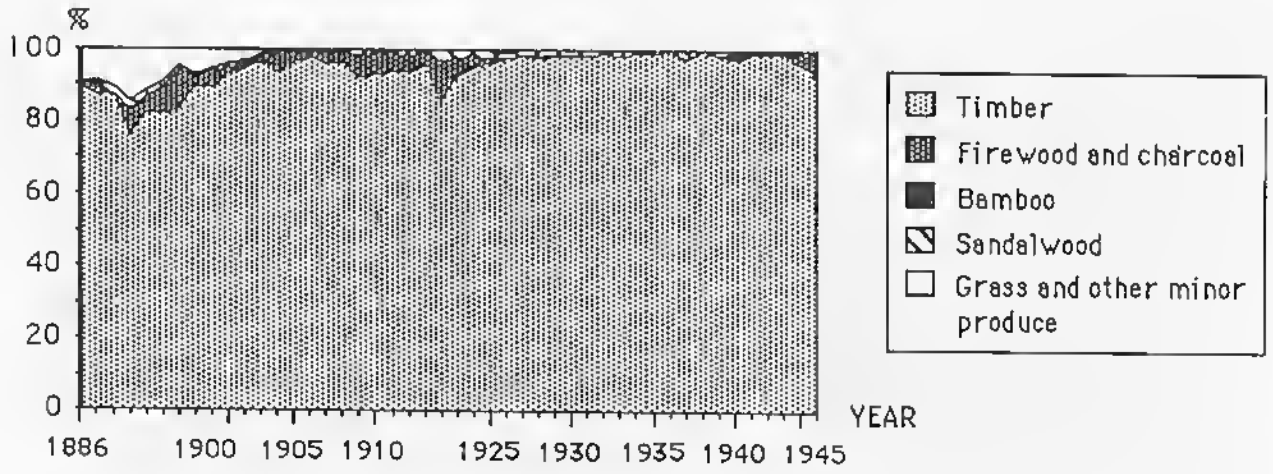


Fig 8': BREAKDOWN OF REVENUE BY PRODUCTS UNDER HEAD II IN NORTH KANARA (1886-1947)

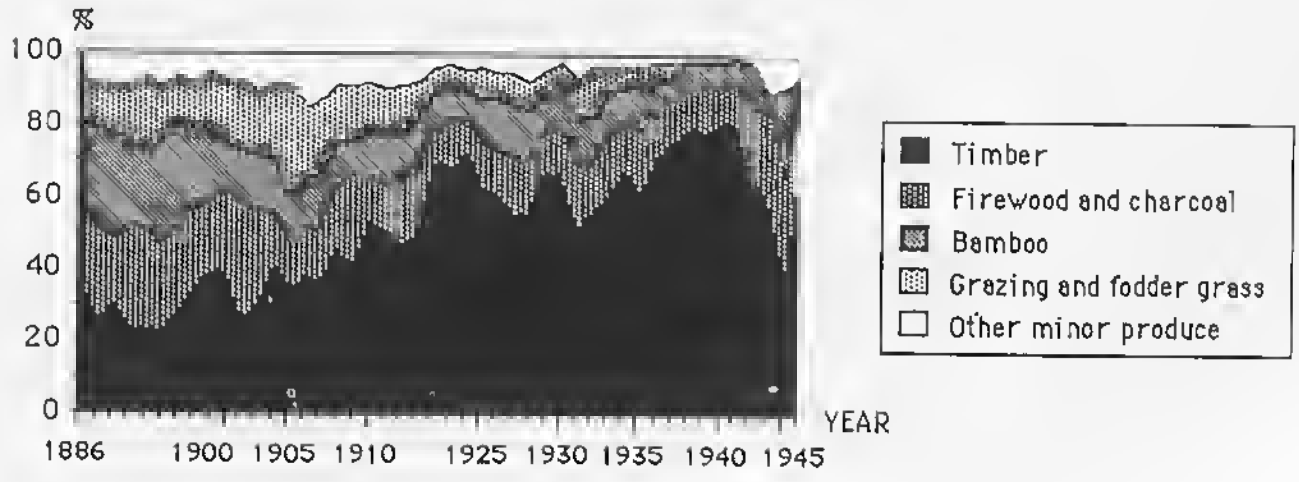


Fig 9 : VARIATION OF TIMBER OUTTURN IN NORTH KANARA (1886-1947)

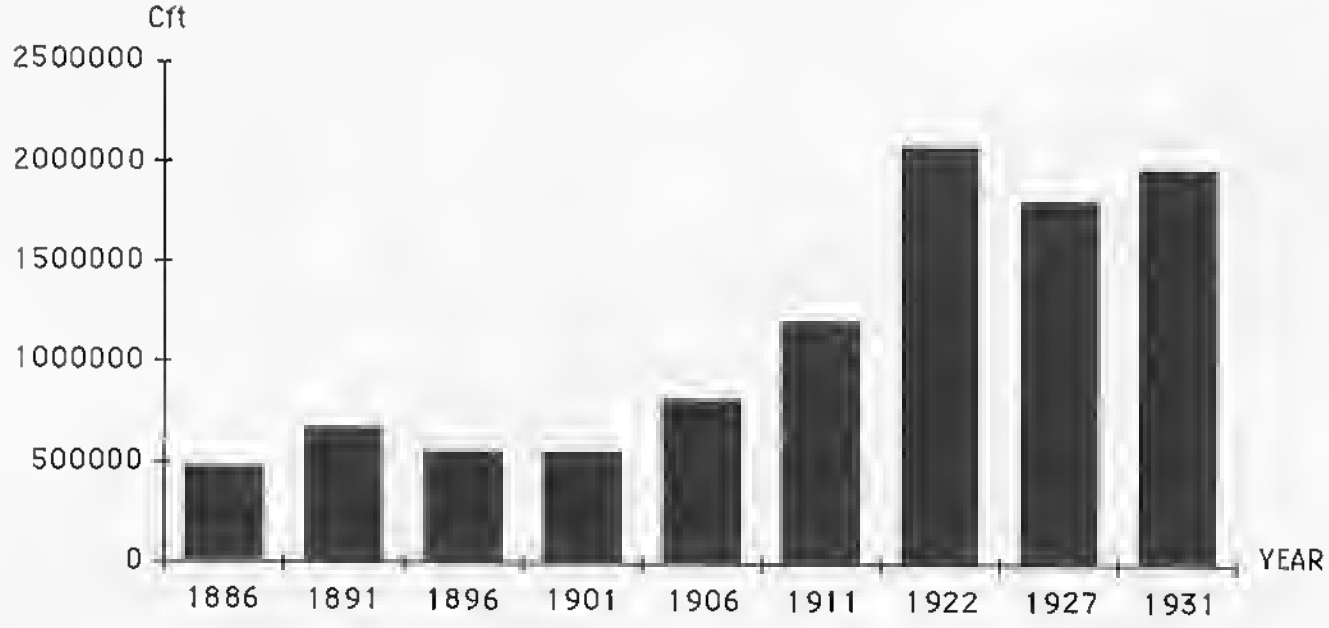


Fig 10 : VARIATION OF TIMBER OUTTURN BY AGENCY IN NORTH KANARA (1886-1947)

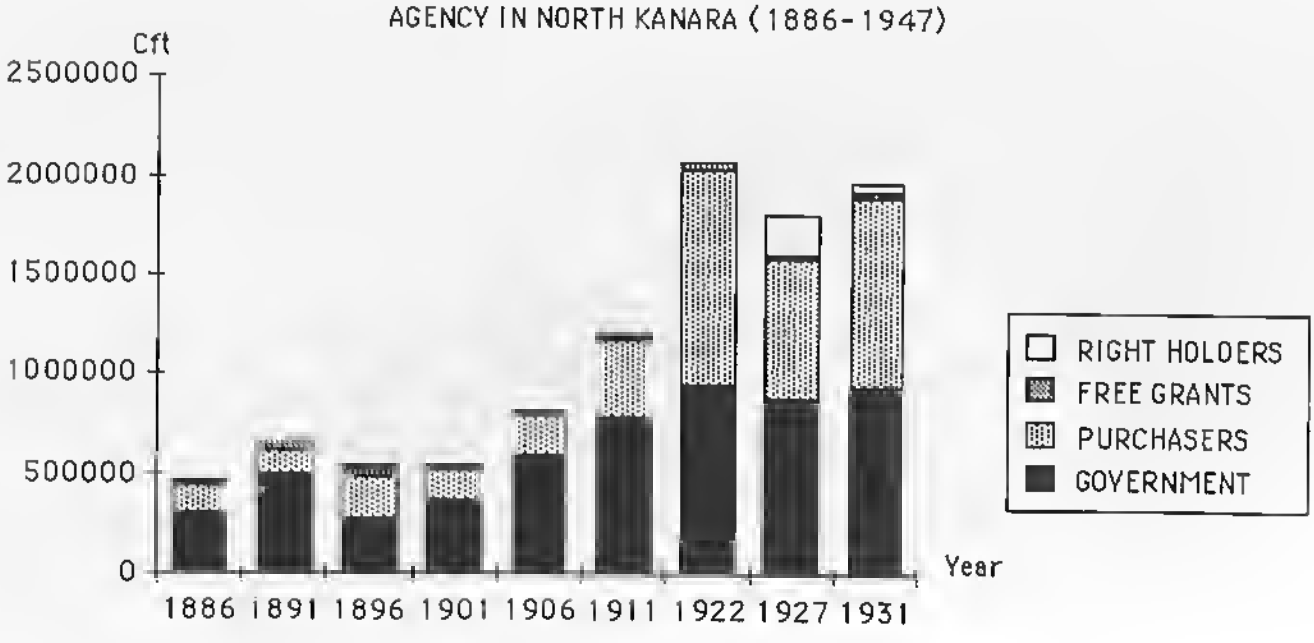


Fig 11 : VARIATION OF TIMBER REVENUE IN NORTH KANARA (1886-1947)

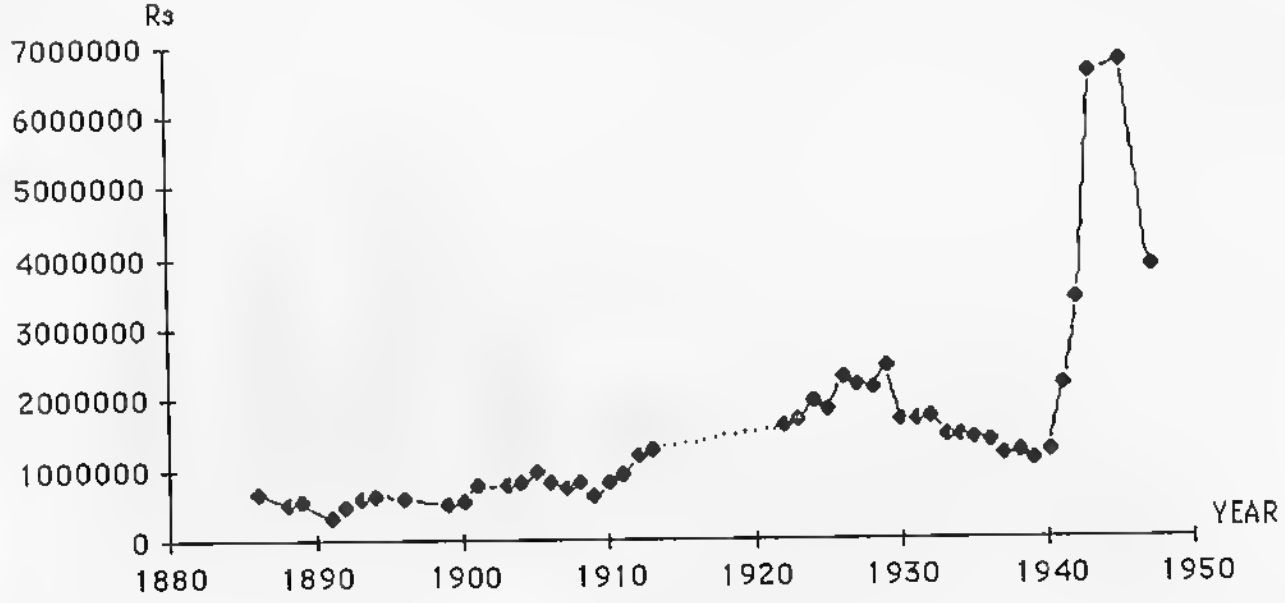


Fig 12 : VOLUME OF TIMBER OUTTURN BY DIVISION IN NORTH KANARA (1886-1947)

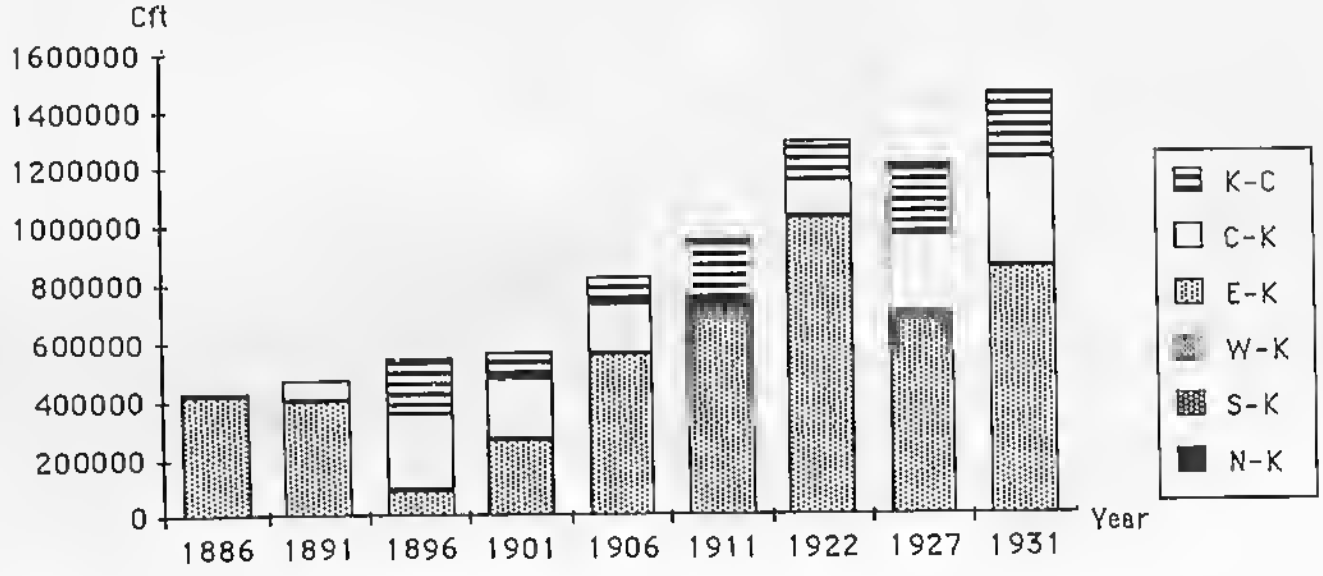


Fig 13 : VOLUME OF FIREWOOD OUTTURN BY DIVISION IN NORTH KANARA
(1886-1947)

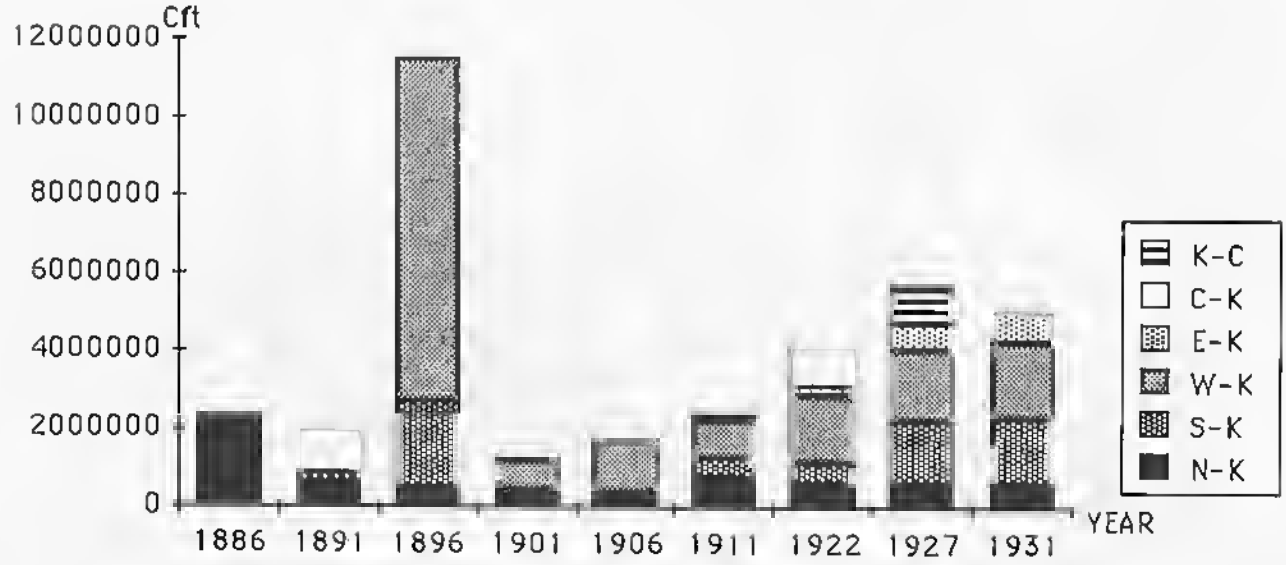


Fig 14 : VOLUME OF FIREWOOD OUTTURN IN NORTH KANARA (1886-1947)

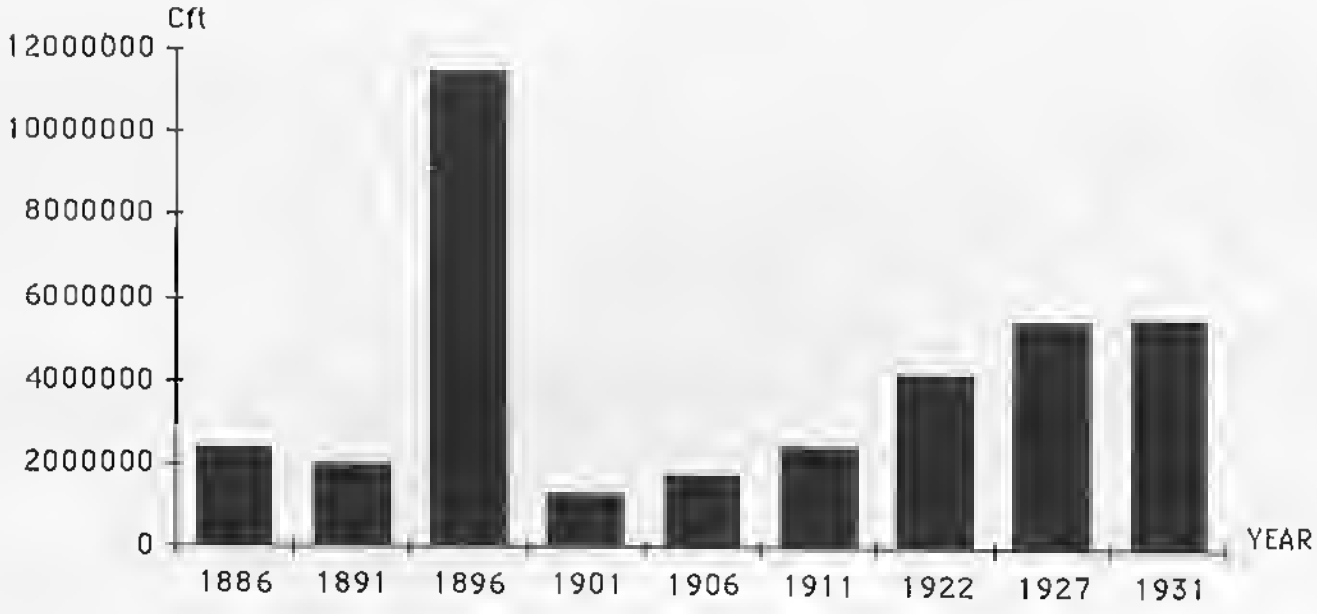


Fig 15 : VOLUME OF FIREWOOD OUTTURN IN NORTH KANARA BY AGENCY
(1886-1947)

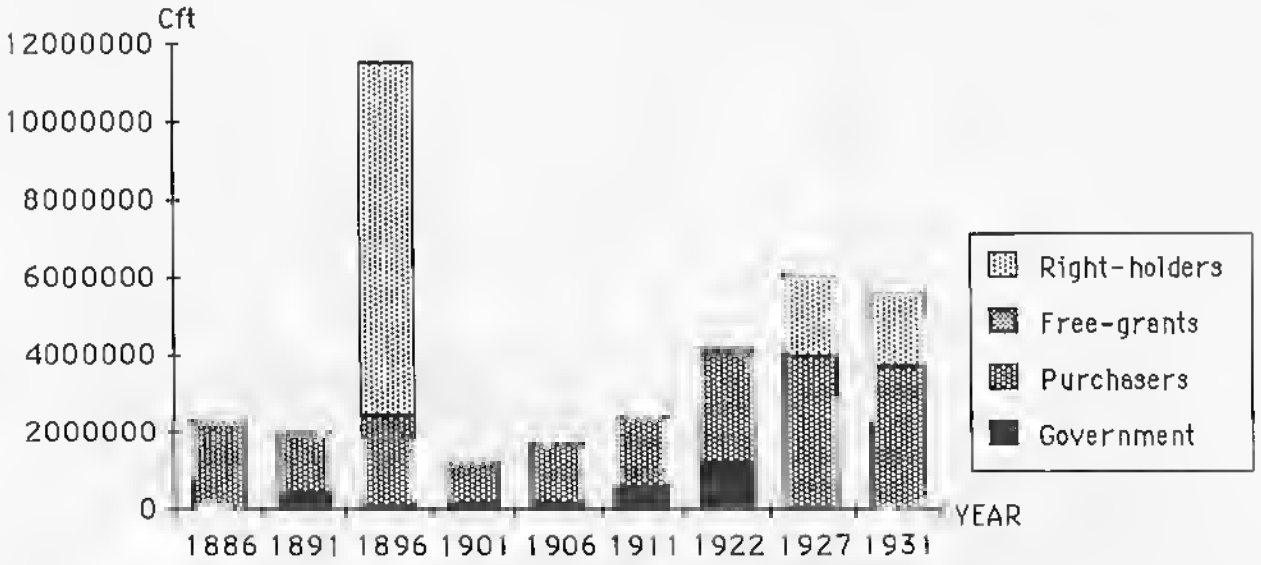


Fig 16 : VARIATION OF MAIN HEADS OF EXPENDITURE IN NORTH KANARA
(1886-1947)

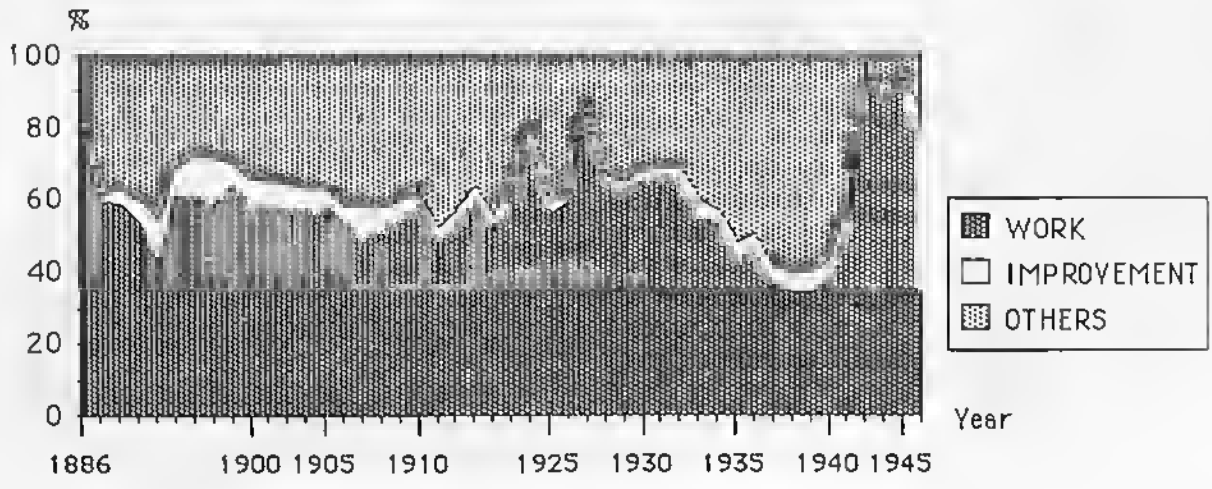


Fig 17 : VARIATION OF EXPENDITURE UNDER HEAD "TIMBER" IN NORTH KANARA (1886-1947)

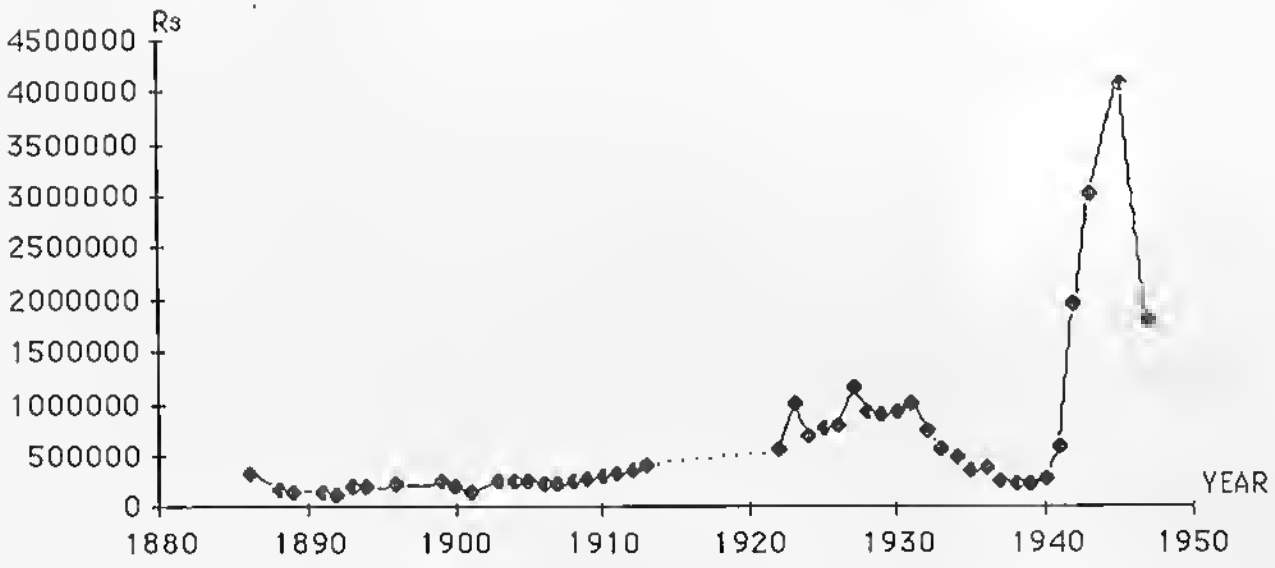


Fig 18 : VARIATION OF EXPENDITURE ON "IMPROVEMENT" IN NORTH KANARA (1886-1947)

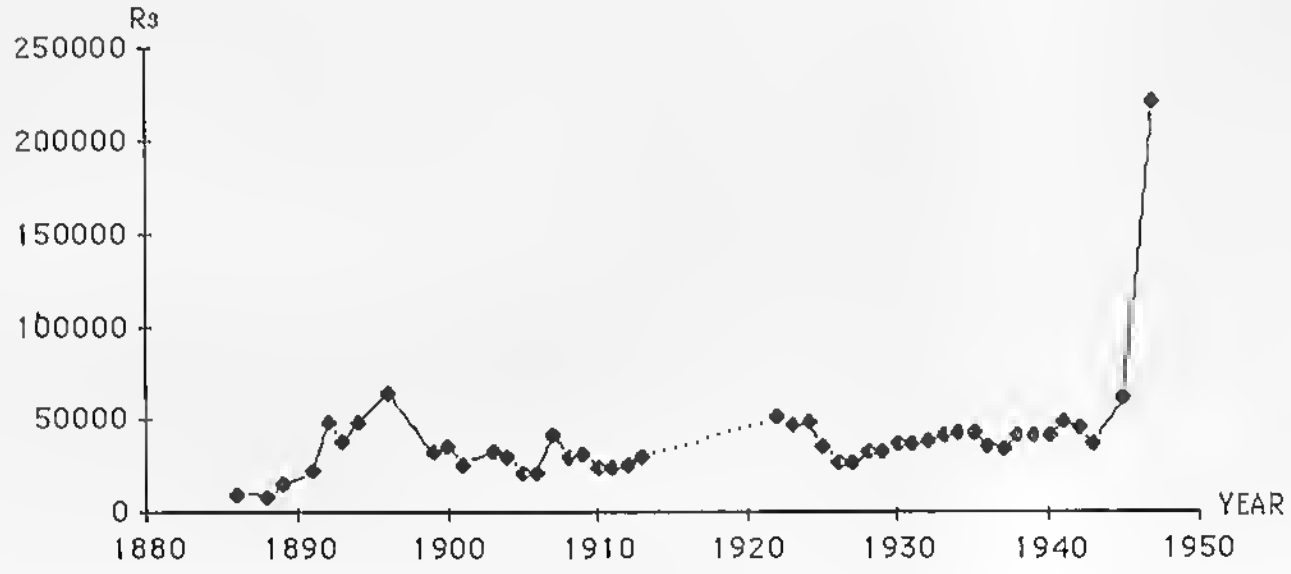
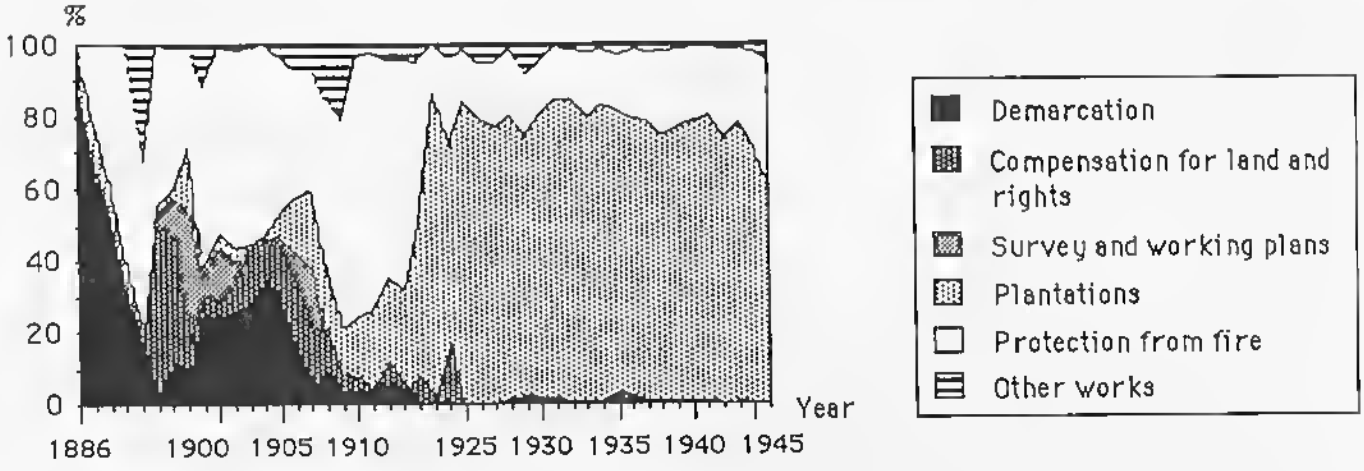


Fig 19: PERCENTAGE VARIATION OF EXPENDITURE ON IMPROVEMENT (HEADWISE) IN NORTH KANARA (1886-1947)



Institut Français de Pondichéry. Département de Sciences Sociales

Marlène BUCHY

L'exploitation forestière coloniale dans les Ghâts occidentaux (Inde du Sud): le cas du district de North Kanara

L'objet de ce travail est de mettre en lumière le modèle d'exploitation et de gestion des forêts mis en oeuvre dans les Ghâts occidentaux (Inde du Sud) par l'Etat colonial britannique, à partir de l'étude d'un district forestier de cette région, le North Kanara. La première partie du texte présente un bref historique de la genèse de la législation forestière coloniale, et de la réglementation de l'exploitation et des droits d'usage imposée aux populations locales, dont les modes de vie agraires ou pastoraux dépendaient pour une large part de la libre jouissance des produits de la forêt. On montre comment l'Etat colonial, à travers cette législation et cette réglementation, étend progressivement son contrôle sur les espaces forestiers, et substitue ses modes de gestion et d'exploitation à ceux que pratiquaient les communautés locales.

La seconde partie du texte consiste dans une analyse chiffrée de cette gestion forestière coloniale, effectuée à partir des budgets annuels publiés par le Forest Department du Gouvernement de Bombay pour le North Kanara, et des plans d'aménagement (Working Plans) périodiquement rédigés pour les forêts de ce district. L'étude des recettes et des dépenses budgétaires montre que l'exploitation de ces forêts rapportait beaucoup d'argent au gouvernement colonial, et contribuait de diverses façons à l'entretien et à la consolidation de l'Empire. La part des recettes qu'on réinvestissait dans la forêt était faible. L'exploitation commerciale des bois était pour une bonne part tournée vers l'extérieur, et ne bénéficiait guère au district lui-même. L'analyse des Working Plans éclaire la stratégie d'exploitation du Forest Department, laquelle consistait à privilégier les espèces dont la rentabilité commerciale était la plus forte (notamment le teck), sans souci suffisant des besoins économiques et des conditions d'existence des populations locales, et alors que les préoccupations de nature écologique n'apparaissent que tardivement.

Mots-clés : Inde, Karnataka, Bombay Presidency, North Kanara, Uttara Kannada
Colonisation, Législation
Environnement, Forêt

Marlène BUCHY: Colonial Forest Exploitation in the Western Ghats of India: A Case Study of North Kanara District
Pondy Papers in Social Sciences, n°7, Pondichéry, 1990, 56 p.

Launched early 1989 by the Department of Social Sciences newly created at the French Institute of Pondicherry, the *Pondy Papers in Social Sciences* aims at offering a convenient medium for presenting promptly in English, studies illustrating some significant areas or trends of French or Indo-French research presently being conducted on the Indian world. A testimony of gestating projects, on-going studies or works recently completed, the P.P.S.S. will bring out concluded studies as well as working papers which will eventually be published in journals and books. The series will fulfill its objective if these papers, conceived primarily as a practical tool for communication, help to stimulate Indo-French exchanges in the wide field of social sciences and related studies.

Published Papers:

1. AZIZ, A. and RACINE, J., About Decentralization: two Studies on Multi-level Planning in South India, 50 p.
2. RACINE, J. (Ed.), Rural Change in Karnataka: a Workshop, 80 p.
3. AZIZ, A., Social and Economic Change in a Karnataka Village, 18 p.
4. SCHAR, Ph., Well Irrigation and Socio-economic Changes. A case Study in Pollachi Taluk, Coimbatore District, Tamil Nadu, 38 p.
5. RACINE, J., To Migrate or to Stay? Mobility and Retention of Rural Populations in South India: A Field Survey of Villagers' Rationales in Mandya District, Karnataka, 34 p.
6. Jacques POUCHEPADASS: The Ecological History of the Central Western Ghats in the Modern Period: A preliminary Survey , 32 p.
7. BUCHY, M., Colonial Forest Exploitation in the Western Ghats of India: A Case Study of North Kanara District, 56 p.